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[ORIGINAL COMMUNICATION.]

CONCENTRATION BY LOW TEMPERATURES.

BY J. U. LLOYD.

I HAVE noticed with interest the paper in the AMERICAN DRUGGIST April, p. 76, regarding the method of concentrating a liquid preparation of coffee by the application of a low temperature, the paper being as follows:

"EXTRACT OF COFFEE.—Paul Noirot, of Paris, is the patentee of a new method of preparing extract of coffee which is said to yield a very satisfactory product.

"Roasted and ground coffee of the best quality is treated with boiling water in the usual manner, and the infusion caused to freeze by appropriate refrigerating apparatus. The ice crystals are rapidly crushed, and separated, in a centrifugal machine, from the dense accompanying extract which does not itself freeze. This extract, which is thus freed from about 90 per cent of its aqueous constituent, is then completely deprived of water, in a vacuum apparatus, and the residue made into tablets or cakes."

I believe that it will be found that advantage has been taken by other persons of similar methods to free organic solutions from aqueous liquids, in most cases, perhaps, where nothing has been published in that direction. Where prolonged heat is destructive, the method is often, I believe, in the future destined to be of exceptional value.

It is well known that the "mother liquor" contains most of the impurities of solutions from which crystalline bodies have been separated, and, in the case of most organic extractive matters, the natural combination is often neither crystalline nor easily frozen. Indeed, it is not always necessary to reduce the solution to the congealing point in order to cause precipitations either of valuable or of inert constituents in abundance, and the operator, by studying each particular substance in its relationships concerning other associated substances, can dissociate the natural constituents of many organic liquids, and either cast aside the precipitate or retain it as the investigations demonstrate is desirable.

I have no doubt that the reason so many persons have insisted on using evaporation, or heat application exclusively, is because of a general view which is to the effect that this is about the only feasible method of concentration. It is the easy one, the authoritative one as recorded in books, and to question the possibility of an *opposite* course in face of printed authorities seems irrational.

The fact is, however, when we purify *crystals* we actually reduce the bulk of the original liquid, which might properly be the desired product, and often is, and the crystallization of water from organic liquids, leaving the extractive matters, is, it seems to me, simply an application of the well-known laws that govern the purification of salts.

Of course, the previous application of heat is usually necessary, but, if the crystals (as water) are objectional, a reduction of temperature will often accomplish that for which evaporation is now employed. I presume that all operators will recognize instances in which the evaporation of an extractive liquid can be accomplished to a certain extent without the development of a "burnt" odor or without apparent dissociation, but that further reduction is destructive even at lower temperatures than before. In these instances, the application of a low temperature applied at this stage of the concentration, after the plan suggested in concentrating the preparation of coffee, may more often be found effectual than is generally supposed.

I have found that in some cases if such a liquid be reduced to a very low temperature (short of freezing) and then cautiously mixed with the proper amount of alcohol, it will separate into two layers, one of which will often contain the larger amount of the inert matter, and by this method most of the water can be excluded. By studiously applying this rule, and by using various neutral solvents such as ether, or mixtures of ether, alcohol, chloroform, etc., in an appropriate manner, some very desirable and unusual dissociations of natural plant constituents may be accomplished with but little applied chemistry or evaporation. Such a study has been part of my individual duty for many years, and from the result of my labors I assume that, at some time in the future, less heroic chemistry and less heat evaporation will be employed in purifying many plant constituents, or separating them into natural sections, than is freely accepted now as a necessity. Some years ago, I was perplexed over a substance that I desired to obtain and that was associated with a glucose in a plant product. This I vainly tried to remove, but it seemed impossible to precipitate it, and any single solvent that I employed would dissolve both of them or neither.

At last I wrote to the late Prof. Henry B. Parsons, then in the Agricultural Office at Washington, for assistance. He was at this time working in this very direction (sugar cane, I think), and replied that he could give me no aid, and that with unfermentable and uncrystallizable sugars the elucidation of a simple scheme to apply to such problems was a desideratum of the day. Afterward, I effected that separation by means of a very cold solution of the glucose-like liquid in cold alcohol, to which I slowly added sulphuric ether until two layers formed. The upper layer contained the substance desired, with some glucose, and by evaporation and re-application of the process, I obtained it pure.* Since, I have evolved many detail methods with laboratory products of unofficinal and irregular character, where this manner of procedure is desirable, and, in my opinion, the present method of plant analysis, or preparation of plant products, will be considerably modified by the application of such schemes at a very near day in the future, and it may be that the present destructive methods, whereby organic compounds are evolved (or rather produced) from plants by stiff chemical reagents, will be supplemented at least by others which we seem now to have generally overlooked. In a work applied to the constituents of gelsemium, about a year ago, I had reason to prepare for Prof. Flückiger, of Strasburg, some pure gelsemic acid. This I obtained easily in a state of absolute purity and in considerable amount, without the use of any chemical whatever, simply by the application of the foregoing principles. As thus obtained, it was in the form of great needle-like crystals, pure white, and it excited the admiration of Prof. Flückiger and also Prof. Prescott, to whom a part of it was afterward sent as a specimen.†

I do not write this paper to advance as new the suggestions therein made, for, I presume, that such applications of well-known factors are probably far from being new, and only in detail laboratory manipulation under special conditions do I suppose that I have even in my own field accomplished anything of value, but it is true that such work has been a necessity with me for years. Indeed, I was led to the consideration of the part of the subject connected with concentration by low temperature, by information derived, when a boy, from reading a narrative of the life of Colonel James Smith, in which he gives the method the Indians of North America employed to make maple syrup, and which I afterward applied to my studies. Since the appearance of your paper on the preparation of a coffee concentration, I have looked this narrative up and reproduce it as follows:

"Shortly after we came to this place [the northern part of Ohio as I would make it.—L.], the squaws began to make sugar. We had no large kettles with us this year, and they made the frost, in some measure, supply the place of fire in making sugar. Their large bark vessels, for holding the stock water, they made broad and shallow; and as the weather is very cold here, it frequently freezes at night in sugar time; and the ice they break and cast out of the vessels. I asked them if they were not throwing away the sugar. They said no; it was water they were casting away; sugar did not freeze, and there was scarcely any in that ice. They said I might try the experiment, and boil some of it, and see what I would get. I never did try it; but I observed that, after several times freezing, the water that remained in the vessel changed its color, and became brown and very sweet." ‡

It will be seen that the aborigines of North America were acquainted with methods of concentration by means of both evaporation and low temperatures, and it is evident to me that in working galenical preparations, one of our oversights has been to confine ourselves to that which is most commonly known and easily applied. This paper of Colonel Smith, 1799, appears to me to contain the essential features of that of Mr. Noirot.

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* Such a liquid often holds a constituent quite tenaciously, that a mixture of the two liquids will scarcely separate from its natural combinations. In studying the application of this method to plant dissociations, care must be taken to avoid the addition of too much ether, otherwise the entire material will be precipitated. By the use of different neutral solvents, chloroform, benzol, etc., some unusual separations may be accomplished.

† My work in this way demonstrated to my satisfaction that the alkaloid gelsemine is not combined in gelsemium with the so-called gelsemic acid, although it is in complex combination. Gelsemic acid (so-called) exists free in the drug.

‡ This is an exceedingly interesting narrative, taken from Drake's "Indian Captivities," the title being as follows: "An Account of the Remarkable Occurrences in the Life and Travels of Colonel James Smith (late a citizen of Bourbon County, Kentucky), during his Captivity with the Indians, in the Years 1755, '56, '57, '58, '59. In which the Customs, Manners, Traditions, Theological Sentiments, Mode of Warfare, Military Tactics, Discipline and Encampments, Treatment of Prisoners, etc., are better explained, and more minutely related, than has been heretofore done by any author on the subject. Together with a Description of the Soil, Timbers, and Waters, where he travelled with the Indians during his captivity. To which is added a brief account of some very uncommon occurrences which transpired after his return from captivity; as well as of the different campaigns carried on against the Indians to the westward of Fort Pitt, since the year 1755 to the present date 1799. Written by himself."

[ORIGINAL ABSTRACT.*]

The Use and Administration of the Pancreas and its Preparations.

ONE of the most efficient methods of utilizing the special ferments of the pancreas is to employ this organ in a crude condition or to prepare from it an aqueous extract which should be used as soon as possible.

According to Engesser, the best method of preparing the pancreas is the following. The organ—preferably derived from the hog—which should be as fresh as possible, is deprived of membranes, thoroughly cleansed with a cloth, and carefully freed from fat. It is then scraped with a rather blunt knife or chopped to a paste in a chopping machine, and then rubbed through a hair sieve. The resulting magma may be added to food as such. It may be preserved for a short time by mixing it with common salt or one-third its quantity of extract of beef, in a wide-mouthed bottle which must be well corked and kept in a cold and dry place; during summer preferably in an ice box. If this preserved pancreas is used, it is advisable to treat it, on the evening before it is wanted, with about 1 pint of water and 8 to 10 drops of diluted hydrochloric acid in order to liberate the larger portion of the ferment.

An aqueons solution of the ferments of the pancreas may be prepared by treating the organ, previously chopped and freed from fat, as in the preceding case, with water (½ pint for every pancreas) warmed to 30° C. (86° F.), then adding a little common salt, and setting the mixture aside for 5 or 6 hours. It is next transferred to a strainer or a fine hair sieve and the liquid portion drained off without pressure. This liquid is comparatively less active than the pancreas paste, and must be used while fresh, but in some cases it is preferable.

The best method of administering the pancreatic ferments, according to Engesser, is to add the pancreas paste (above described) to the food itself.

Since pancreatic ferments become inert when exposed to a temperature exceeding 45° C. (113° F.), the particular kind of food to which the pancreas is to be added must have a temperature below that just named. In practice, it may be said that the proper temperature is reached when a portion of the food taken into the mouth ceases to produce a sensation of heat or burning. In order to cover the taste of raw meat caused by the addition of the pancreas paste, the food to which it is added should be well spiced. Or some lemon-juice, a few drops of wine-vinegar, etc., may be added to correct the taste. [These additions are not regarded as interfering with the activity of the pancreatic ferments, at least not with all of the ferments.] In order to hide the presence of the pancreas paste to the eye, it is advisable to select a form of food (soup, etc.) which has an opaque appearance.

It is well known that soup, when introduced into an empty stomach, passes rapidly through this, and descends to the inferior portions of the intestinal canal more rapidly than other kinds of food.

Hence, in order to subject the latter likewise to the action of the pancreas, it is necessary to have several courses of soup alternate with the other dishes, or to direct the soup to be taken in portions during the whole meal. Another method which is recommended is to serve with every course some kind of sauce mixed with pancreas paste.

Since it is not always possible to procure fresh pancreas for the preparation of the paste, Engesser proposes to prepare a *powdered pancreas* of good keeping qualities. For this purpose, the properly cleansed organ is very finely comminuted, and reduced in a vacuum apparatus at a temperature of 40° C. (104° F.) to an extract. This is treated during about forty-eight hours with absolute alcohol, after which the latter is allowed to drain off, and the remainder adhering to the mass driven off by a heat not exceeding 40° C. The dried residue appears in form of a light-brown, coarse powder, which is easily taken or administered either in wafer-capsules or with water. As it is very hygroscopic, it must be kept from dampness with great care.

This preparation does not represent an isolated ferment of the pancreas, but the parenchyma of this organ hardened by means of alcohol. It is important to state this, since it is well known that trypsin—the peptone-forming ferment of the pancreas—is destroyed by the acid gastric juice, for which reason those commercial pancreatic products, which contain or profess to contain the trypsin (for instance, those of Savory & Moore, of London; Defresne, of Paris; Witte, of Rostock) become inactive in the stomach, as has been shown by Ewald.

Eye Water.—A western exchange recommends a formula for an eye-wash consisting of 2 drops of liquor plumbi diacetatis in one ounce of elder-flower water, upon which we have the criticism to make that a salt of lead should *never* be used as an ingredient in a collyrium; the reason being that an acetate is especially liable to conversion into carbonate, and in case there is any erosion of the cornea, the lead is deposited in the form of white film which *tattooes* the eye, so to speak, and leaves a permanent blemish. [ED. A. D.]

* From "Die neueren Arzneimittel." Von Dr. W. F. Loebisch. 8vo, Wien und Leipzig, 1888 (3d ed.).

Notes on Cocaine.

FROM a rather lengthy paper on Cocaine and its Salts by Dr. B. H. Paul, published in the *Pharm. Journ.* of March 17th, we take the following, which relates to the best practical method of testing the hydrochlorate (or hydrochloride) of cocaine: a remarkable alteration of cocaine takes place when the base is precipitated from a water solution of the hydrochloride by ammonia or some other alkali. My attention was first directed to this change in applying to samples of the hydrochloride the test suggested by Maclagan. This test consists in adding two drops of ammonia to a solution of one grain of the salt in two fluidounces of water. With a good sample a dense precipitate is produced, either at once or on stirring the liquid with a glass rod, and this precipitate soon acquired a very distinct crystalline condition. When the tested solution was left standing for some hours, it was observed that the precipitate had become less bulky, and at first it seemed probable that this change might be due to more complete crystallization; but, after the lapse of twenty-four hours, or more in some instances, the precipitate entirely disappeared, and, on examination of the solution, it was found that the cocaine had been entirely converted into benzoylecgonine, which readily crystallized on evaporating the solution over sulphuric acid. This is an alteration that always takes place to some extent when the base is precipitated, and, therefore, it may give rise to appreciable loss in the preparation of cocaine if such a precipitate is left for any length of time in contact with the liquid from which it has been thrown down. . . .

As regards the method of testing this salt, I do not think that the chloroform test is of much service. In my opinion, a much better place of ascertaining the relative quality of different samples of cocaine hydrochloride is to determine the amount of alkaloid obtainable by precipitation of a water solution with ammonia. The chemically pure anhydrous salt, $C_{17}H_{21}NO_4HCl$, contains 89.25 of cocaine, and when the solution precipitated is not too dilute, a precipitate closely approximating to that amount should be obtained if the salt tested does not contain impurities that are more soluble in water than cocaine is.

It is sometimes stated in books that the precipitate produced by ammonia in solutions of cocaine salts is redissolved on adding excess of ammonia. This is a mistake; the solubility of cocaine in water is but little, if at all, increased by the presence of a large excess of free ammonia. The disappearance of the precipitate after the lapse of some time is not due to its being redissolved, but is the result of the decomposition already mentioned. Ammonia is, in fact, the best precipitant of cocaine, and to illustrate this fact I may state that, when a solution containing only $\frac{1}{800}$th of cocaine hydrochloride is mixed with ammonia and shaken, the alkaloid is immediately separated in the form of distinct needles. This degree of solution is nearly the same as in Maclagan's test, and it appears to be near the limit of solubility of cocaine, for with a solution containing $\frac{1}{1000}$ of hydrochloride the separation of crystals is doubtful. At any rate, with such a dilute solution there is danger of the imagination being used in a manner that is not scientific. In applying this test, it is important to collect the precipitate as soon as possible after it has entirely deposited in order to avoid loss from the decomposition already mentioned. By leaving the precipitate for eighteen hours in contact with the ammoniacal liquid, there may be a loss of about 3 per cent of the cocaine. . . .

For the purpose of ascertaining the presence of an amorphous base in cocaine salts, there is, I think, no method of testing at present known better than precipitation with ammonia. This should be carried out in the way directed by Maclagan, and also with a stronger solution, so as to observe the character of the precipitate and ascertain the amount obtainable.

Messrs. F. F. Boehringer & Sons, of Mannheim, the well-known manufacturers or quinine and other alkaloids, have recently published a circular in which they assert that the most reliable test for the purity of cocaine and its salts, in their opinion, is the following modified permanganate reaction:

Dissolve 0.1 Gm. of hydrochlorate (etc.) of cocaine in 5 Gm. of water, add 3 drops of diluted sulphuric acid (sp. gr. about 1.112) and afterwards one drop of a 1-per-cent solution of permanganate of potassium. The violet tint of the liquid must remain unchanged during at least one hour. The vessel in which the test is performed should be carefully covered to prevent the access of dust.

While this test is quite exacting and moderately reliable, it should, in our judgment, be always combined with Maclagan's test (see pp. 22 and 62, 1887).

Sutherlandia frutescens has lately reached England from Cape of Good Hope with a reputation as a cancer remedy. It appears in commerce as the foliage and stems of a leguminous shrub, bearing bladder-like, thin-shelled pods, something like those of bladder senna. It is sometimes cultivated in English gardens for the sake of its large, scarlet flowers, where it is known as Cape bladder senna. The powdered leaves and roots have been used at the Cape as an ophthalmic remedy.—*Prov. Med. Journ.*

Note on Strophanthus and Strophanthin.

FROM a paper by Catillon, recently published in the *Archives de Pharm.*, we take the following:

The seeds of *Strophanthus Kombé* contain in 100 parts:

Fatty Matter, soluble in ether and alcohol	32
Dry Extract, soluble in alcohol of 70%	15
Gummy and albuminous substance	11
Insoluble Residue	34
Water and Loss	8
	100

The fatty matter is of an intense green color, and imparts this tint to the tincture if the seeds themselves are treated with strong alcohol. This is a drawback, as the fat has a repulsive odor and is apt to produce nausea. Hence it must be eliminated both from the extract and the tincture, which is best done by first exhausting the seed with ether. When the fat is removed, they are extracted with alcohol of 70%, which yields a yellow tincture free from gummy or albuminous substances. On evaporating such a tincture, an alcoholic extract of great activity is obtained, which yields, with water, a milky solution, and which is difficult to handle when dry, as it excites sneezing like veratrine. When dissolved in a mixture of water and glycerin, however, this extract yields a clear solution which may be used hypodermically.

Mr. Catillon thinks it is a mistake to employ the tincture of strophanthus. This has several disadvantages. It is, in the first place, bitter; besides, it is liable to vary in its effects, because the market sometimes affords seeds which have been partly or wholly exhausted. For this, and other reasons, Mr. Catillon believes a dry extract, prepared by evaporating the tincture, to be preferable. This may be given in doses of 0.001 Gm. or $\frac{1}{64}$ grain, best in form of granules, twice daily. Dr. Bucquoy has even given as much as four such granules a day, without accidents.

The dose of strophanthin is one or two granules containing $\frac{1}{10}$ of a milligramme, or about $\frac{1}{640}$ grain each.

From one kilogramme of strophanthus seeds (from *Strophanthus Kombé*), Mr. Catillon has extracted 9.5 Gm. of strophanthin, crystallized in microscopic needles, which are transparent when damp, but become opaque on drying. They have a neutral reaction towards litmus paper, and their solution is not affected by the usual characteristic alkaloidal precipitants. With tannic acid, strophanthin yields a bulky, white precipitate, soluble in an excess of strophanthin. In such a solution of strophanthin, sulphuric acid produces a greenish precipitate becoming black after a while. In the cold, this reaction does not occur until after the lapse of several hours; it is brought about more speedily by raising the temperature. If a crystal of strophanthin is treated, directly, with a drop of sulphuric acid, a fine emerald green color is produced, passing into reddish-brown, and afterwards into black. This reaction has been announced by Gerrard as characteristic of the amorphous principle. In moist air, the black color changes again to greenish.

If strophanthin is treated with hydrochloric acid, the solution, which is colorless while cold, turns green by being slightly heated. This reaction, which is analogous to that produced with digitalin, is, therefore, no longer to be regarded as characteristic of the last-named substance. On the other hand, digitalin is not colored by cold sulphuric acid, while, with sulphuric acid and ferric chloride, and by the application of a gentle heat, it gives a blue color, in contradistinction to strophanthin which yields a green one.

Nitric acid colors strophanthin pale rose-red, which becomes orange-yellow by a gentle heat.

A solution of strophanthin, on being shaken, produces foam. If it is brought together directly with Fehling's solution, it does not affect the latter. But if it is first digested with dilute sulphuric and hydrochloric acids (1:10), it reduces the test solution, 10 C.c. of the latter being reduced and rendered just colorless by 0.15 Gm. of strophanthin. The latter, therefore, is a glucoside. It contains no nitrogen, and is not related to the group of the alkaloids.

Strophanthin is soluble in 13 parts of cold absolute alcohol, and in 3 to 4 parts of boiling alcohol. On pouring a hot alcoholic solution of strophanthin into cold water, the substance at once separates in form of crystals. The hydrated crystals dissolve easily in water; but after they are dried, it requires about 30 parts of water to dissolve them. The substance is insoluble in ether and in chloroform free from alcohol.

On evaporating its alcoholic solution, strophanthin forms, upon the walls of the capsule, a vitreous, transparent layer, separating in micaceous, brilliant scales. From this amorphous condition, the substance passes into the crystalline on moistening it with a little water.

Half a milligramme ($\frac{1}{128}$ grain) injected into a rabbit weighing 27 ounces caused death in less than an hour.

A Two-per-cent Solution of carbolic acid, sprayed lightly about the bed-covering, is said to be a certain preventive of trouble from gnats and mosquitoes.

NOTE ON EVODIA AND XANTHOXYLUM HAMILTONIANUM.

SOME time ago the announcement was made that the volatile oil of *Evodia fraxinifolia*, an East Indian plant, had an extraordinary power to cover the odor of iodoform. We also had information, obtained through a prominent wholesale house, that steps had been taken to secure either the oil, if obtainable, or the fruits of the drug itself. Mr. H. Helbig, of London, now writes to the *Chemist and Druggist* that there was some error committed in the identification of the fruits which had been at first brought to London. It turns out now that the odoriferous fruit is derived from *Xanthoxylum Hamiltonianum*. The fruits of the true Evodia consist of four carpels united into a star-like shape, each of which contains two longitudinal and three rounded angular seeds pointed at the two ends. The seeds are of a dark-brown, faintly lustrous appearance. The epicarp is parchment-like, more or less speckled, and dirty earthy-brown in color. The fruits of *Xanthoxylum Hamiltonianum* consist of 3 to 4 carpels similarly arranged, and the pericarp is brown and dotted with minute warty points. The seeds are heart-shaped, and have a resplendent black color. The fruits of this plant are only about half as large as those of *E. fraxinifolia*, though they are much more elegant in form and appearance, but the seeds of the last-named are the smaller.

a. Fruit of *Evodia fraxinifolia* (viewed from the apex), two of the carpels of which have dehisced. *b*. Seeds of the same. *c*. Fruit of *Xanthoxylum Hamiltonianum*, with 4 carpels, all of which have dehisced (viewed from the apex). *d*. A 3-carpelled fruit of the same (viewed from the base). *e*. A seed of the same. Cuts are same size as original fruits and seeds.

The fruit of *Evodia fraxinifolia* is quite valueless, and does not seem to contain an essential oil.

Some New Remedies.

Cedrine is a bitter principle extracted from the seeds of *Simaba Cedron* Planch., which have been highly valued in New Granada, Colombia, etc., as a remedy against the bites of venomous snakes; also in yellow fever, intermittent fever, and various intestinal troubles. Cedrine is in form of yellowish transparent crystals, easily soluble in water, less so in alcohol. The substance is extremely energetic and toxical.

Ephedrine Hydrochlorate is a crystalline alkaloid from *Ephedra vulgaris* var. *Helvetica*, forming colorless needles, soluble in 4 parts of water, and easily soluble in alcohol. It has mydriatic properties.

Iodine Trichloride has been found to be a very efficient antiseptic and disinfectant, chiefly on account of its liberating the chlorine readily. It is an orange-red powder, the odor of which strongly irritates the mucous membranes. It is best used in solution of 1 in 1,200.

Condurangin, a glucosite from condurango bark (*Gonolobus Condurango*—the Mattaperro Condurango bark). This has been used in gastric diseases with alleged success. It is an amorphous powder, soluble in water, alcohol, or chloroform.

Vieirine, an alkaloid derived from *Remijia Vellozii* D. C. (one of the cuprea barks), which stand in very close relationship to the cinchonas. Has been used as a febrifuge.—From *E. Merck's Circular* (Feb. 21, 1888).

Substitute for Gum-Arabic.

THE high price of gum-arabic has stimulated inventive genius to discover substitutes suitable for the various purposes, technical as well as pharmaceutical, in which that substance has found employment. The latest is a preparation patented by Schumann. It is merely *dextrin* free from sugar, and is prepared in the following manner:

Two hundred (200) parts of starch are boiled with 1,000 parts of water, and 1 part of sulphuric and nitric acid in a closed boiler, at a pressure of 2 to 3 atmospheres, until the pasty mass begins to become thin fluid. At this moment the boiling is at once stopped, and the acid neutralized. The boiling is then recommenced at a pressure of 3 to 5 atmospheres, until all the starch is converted into what is technically known as "gommeline." This consists of dextrin, glucose, cellulose, the salts derived from neutralizing the acid and other substances. The cellulose and salts are separated, the remainder filtered through bone-black, and the filtrate concentrated, first in a vacuum apparatus, and then in open vessels, to a density of 40° Beaumé. It is put on the market either in this condition as a viscid liquid or is further concentrated until it is obtained as a solid, forming glassy lumps when broken up. The product is perfectly transparent, not hygroscopic, and is as adhesive as gum-arabic.

Creolin.

UNDER the name *creolin*, a substance has recently appeared on the European market which has been lauded as an energetic and non-poisonous disinfectant. It appears in form of a thickish, dark-brown liquid of a tarry odor, is miscible with water in all proportions, forming a sort of emulsion, and also soluble in alcohol and fixed oils. With ferric chloride, it gives no reaction for carbolic acid. It has been introduced by a Hamburg firm, but no clew was given regarding its nature, except the statement that it is prepared in England by distilling a certain kind of coal, and that it is obtained from the distillate by treating the latter, in a certain way, with caustic alkalies.

Several analysts subsequently reported that it was essentially a resin soap containing carbolic acid.

More recently, B. Fischer and E. Biel have examined it and have come to the conclusion that it is prepared from certain fractions of the distillate obtained from gas coal, which have been carefully freed from the lower boiling phenols (carbolic acid). In fact, Biel thinks that creolin is a by-product of the manufacture of carbolic acid. Probably the higher homologues of this substance are selected and rendered soluble in water by being combined with soda. It contains from 20 to 40 per cent of aromatic hydrocarbons boiling between 210° and 300° C., and valueless as disinfectants, besides leucoline and other pyridine bases, naphthalin and anthracene.—*Chem. Zeit.*

Chloral Hydrocyanate.

CRYSTALLIZED chloral hydrocyanate is announced by Merck as an excellent substitute for bitter almond and cherry-laurel water. The substance in question is the nitrile of trichlorolactic acid ($C_3H_2Cl_3NO$ or $CCl_3.CH[OH].CN$). It is prepared by digesting 1 part of chloral hydrate, during twenty-four hours, with 1 part of hydrocyanic acid of 10–12 per cent, then digesting several hours under an upright condenser, and finally evaporating on the water-bath.

The substance crystallizes from carbon disulphide or from water in thin, rhombic plates. It is soluble in water, alcohol, and ether. Alkaloids decompose it into chloroform, hydrocyanic and formic acids. The crystals have an odor recalling that of hydrocyanic acid and chloral.

Chloral hydrocyanate is a very stable compound, even the aqueous solution keeping for a long time unchanged.

Its therapeutic effect is the same as that of hydrocyanic acid. 6.452 parts, by weight, of chloral hydrocyanate correspond to 1 part of anhydrous hydrocyanic acid. A solution of 0.065 Gm. of the salt in 10 Gm. of distilled water corresponds to the bitter-almond water of the German Pharmacopœia, which is 1 in 1,000. And a solution of 12.9 parts in enough distilled water to make 100 parts will produce a solution containing 2 per cent of hydrocyanic acid, such as is officinal in the U. S. Pharmacopœia.

Phthalate of Cocaine and of other Alkaloids.

SOME time ago, Mr. Bombelon announced that he had found a compound of phthalic acid and morphine to possess advantages superior to those of any other salt of this alkaloid, as it was not only very soluble, but also much more stable.

Upon the experience thus gained, E. Merck, of Darmstadt, has commenced to prepare the corresponding salts of some other alkaloids, for the present of *cocaine* and *caffeine*. A phthalate of strychnine was also attempted to be made, but without success. As Merck himself states, "combinations of organic bases with mineral acids (as in the case of morphine hydrochlorate and sulphate, for instance) are liable to suffer from a tendency toward decomposition in various ways. They are prone to show slightly acid reactions after being kept in solution for some time, though originally produced as neutral salts; they are, furthermore, apt to undergo decomposition through fungi, etc. From these drawbacks the phthalates are reported to be free. But the property of the phthalates most valuable to the medical practitioner, as compared with the salts of other, and especially of mineral acids, is their far higher degree of *solubility in cold water*. Morphine hydrochloride, for instance, is soluble in 25 parts of water; morphine sulphate, in 14.5 parts [it requires over 20 parts—ED. AM. DR.]; and morphine phthalate about 5 parts. Moreover, any surplus of this salt, in proportion to the menstruum, *does not* crystallize from the solution, but is deposited at the bottom of the vessels in the form of an oily liquid, thus separating at once and wholly from the concentrated solution; while, in the case of crystallizing salts, small crystals are liable to remain suspended in the liquid." . . .

Morphine phthalate appears in beautiful, transparent, glassy *scales*, thus affording a ready means of distinguishing it at a glance from the more innocent salts (of quinine, etc.)—fatal confusions with which have sometimes occurred in the case of the muriates, sulphates, and others.

Cocaine phthalate ($C_{17}H_{21}NO_4.C_8H_6O_4$) is a colorless, viscid fluid, very readily soluble in water and in alcohol. The solutions show an acid reaction.

Caffeine phthalate ($C_8H_{10}N_4O_2.C_8H_6O_4.H_2O$) is a white, amorphous solid, of a soft, friable consistence; easily soluble in 5 parts of water, and in hot alcohol. The solutions have an acid reaction.

Acid Corrosive Sublimate Dressings.

ACCORDING to Laplace, the addition of tartaric acid to sublimate and albumen solutions insures the full activity of the antiseptic; indeed, it appears that the combination of an acid with the sublimate increases its antiseptic power, so that weaker solutions may be used. The solution employed is the following:

Corrossive Sublimate	1 part
Tartaric Acid	5 parts
Distilled Water	1,000 "

Gauze, cotton, etc., are soaked for two hours in a solution containing 0.5 per cent of the sublimate and 2 per cent of acid. Laplace obtained very satisfactory results with this dressing in the treatment of suppurating wounds.

[On theoretical grounds we should have supposed that the addition of tartaric acid rather introduced a fresh source of putrefaction or fermentation. However, theory may here be at fault, and the facts be as stated.—ED. AM. DR.]

Chapman's Copaiba Mixture.

OUR attention has recently been drawn, by Mr. E. V. Zoeller, of Tarboro, N. C., to the fact that the formula which is usually known as *Chapman's Copaiba Mixture* differs materially from that originally published by Dr. Chapman. Prof. Remington, at Mr. Zoeller's request, ascertained that the original formula of the preparation was published in Prof. Nathaniel Chapman's "Elements of Therapeutics and Materia Medica" (5th ed., Philadelphia, 1827). It is as follows:

Copaiba	fl. oz. ½
Spirit of Nitrous Ether	fl. oz. ½
Compound Spirit of Lavender,	
Tincture of Opium ("Tr. Theb."),	
Acacia, in powder	ää drch. 1
Water	fl. oz. 3

Dose: A tablespoonful.

There is neither sugar nor syrup in this.

Now the formulæ quoted in works of reference differ very materially from the above. Those which are probably most generally consulted are Griffith's "Formulary" (ed. by Prof. Maisch, Philadelphia, 1874), and Remington's "Practice of Pharmacy." We shall place these side by side, distinguishing the former by "G," and the latter by "R":

		G.	R.
Copaiba	fl. oz.	½	4
Spirit ot Nitrous Ether	fl. oz.	½	4
Comp. Tinct. of Lavender	fl. oz.	¼	2
Tinct. of Opium	fl. dr.	1	1
Acacia, powd.	grains	60	120
Sugar	grains	60	60
Distilled Water	fl. oz.	4	4

The dose of either is given as a tablespoonful.

It is probable that the formula given in Griffith's Formulary has found the most extensive employment, as this work has been almost the only one consulted in such cases for a number of years after its publication.

The original formula, when increased so as to make *one pint*, may be written as follows:

Copaiba	3½ fl. oz.
Spirit of Nitrous Ether	3½ fl. oz.
Comp. Tinct. of Lavender	½ fl. oz.
Tinct. of Opium	½ fl. oz.
Mucilage	1 fl. oz.
Water	enough to make 16 fl. oz.

The Domestic Use of Saccharin.

A CORRESPONDENT writing in the *Scientific American* of February 18th, 1888, relates his experience in using saccharin as follows:

Sugar being a prohibited article to me, I naturally became interested in Fahlberg's "saccharin," and obtaining a supply as soon as possible, began experimenting with it. Using it alone to sweeten lemon juice or stewed cranberries, I found it very difficult to mix, and tried various dodges to remedy it, all of which had some drawback or other until I thought of dissolving it in glycerin.

I found that for general purposes the formula of glycerin one pound, saccharin one drachm, heated to solution, was the best. Two teaspoonfuls of above to the juice of one lemon made up to eight fluidounces make a lemonade sweet enough for almost any one, and three teaspoonfuls to four ounces of stewed cranberries make a dish "fit for a king."

I gave a sample of the above to a gentleman to whom sugar was tabooed, and who was then using saccharin alone, and asked him to try it with cranberries and report. When next seen he said very enthusiastically, "That's splendid. I've bought a barrel of cranberries, and would not go back to sugar if I could."

The advantages of the mixture over pure saccharin are: That the glycerin gives it a body, and the mixture very closely resembles in taste and appearance the best white honey; that it dissolves readily in water, milk, tea, and coffee, wines and liquors; and that it can be very readily measured.

AGITATING MACHINE.

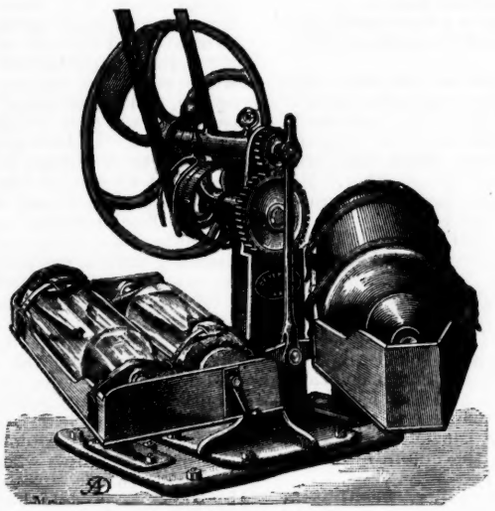
A MACHINE for continuous agitation, very useful for the preparation of alcoholic extracts from pomades, for extinguishing mercury by succussion, for ageing perfumes, and various other purposes, is that shown in the cut, which is manufactured by Beyer frères, of Paris (rue Lorraine, 16, 18). The mechanism producing the shaking motion is not clearly shown in the cut, but it is brought about by an eccentric position of the eye of the guiding rod.*

Distilled and Aromatic Waters.

MR. ADOLF VOMACKA makes some practical remarks of distilled and various aromatic waters in his journal *Rundschau* (Prag).

Distilled Water. Not every kind of water is suitable for the preparation of a *pure* distilled water.

The most effective method to obtain absolutely pure water is deemed by the author that which is officially prescribed by the Pharmacopœia of the Netherlands. According to this authority, the water, previous to distillation, is to be treated with permanganate of potassium until the violet color of the liquid remains permanent. Next, a solution of alum is to be added so as to render the water faintly acid, the water then allowed to stand so as to become clear by settling, the clear liquid transferred to the still, and the middle portion of what passes over to be preserved as *pure* distilled water.



Shaking machine.

Aromatic Waters. In the author's judgment, the most advantageous method of preparing aromatic waters, if the essential oils are to be used as starting points, is the following:

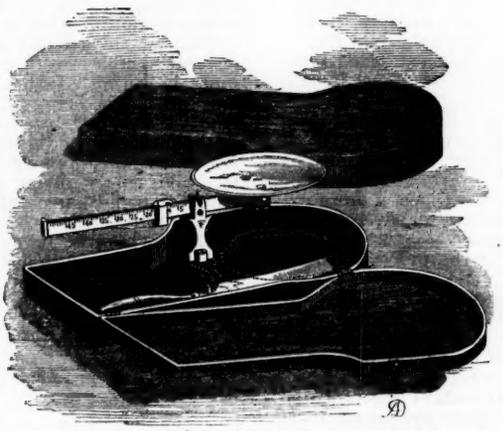
Cause the essential oil to be soaked up by filtering paper, introduce the latter [torn into shreds] into distilled water warmed to between 35° and 45° C. (95°–113° F.), shake thoroughly and frequently while the liquid cools to the ordinary temperature, and then filter.

As an aromatic water thus prepared is saturated with the essential oil at the temperature at which it was filtered, the product should not be exposed to a lower temperature, as this would cause a separation of a portion of the oil.

Torments of Trade.

ONE of our friends has placed into our hands a batch of order slips, collected during the past year or so, and written upon all kinds of paper, which call for the following articles:

1. Alcohol and bergamont.
2. 15 cents' Worth Verkmann, and 5 cents' Worth of catst oil.
3. United States Pharmacian Cathoric Pills for Billious ness.
4. 10 c. balsam pivey, 10c. Oil cubab, 10c. Spirits nitre, little alum.
5. Rochll salts.
6. Nisi fuda Oil.
7. 5 c. Flek sead; 1 c. stemp.
8. crosa of Supimate For Bed Buggs.
9. 5 cents worth of Frase Whitenig quirls (meaning French chalk drops).
10. 1 ounce of Laudlom, 8 grongs of calmon, 8 grongs of White Vilr, 8 Vial water.
11. Send 1 bottle of Citron of Magnesia.
12. 5 ct of Jalv Water.
13. 25 cts Pencil Costic; 10 cts. Camel Powder; 10 cts Waden.
14. Castor Oil and Bagamant mix for hiar.
15. Darling Slave (meant for Dalley's salve).
16. 10 ct. of Jockey Club, 5 cts roachell salts.
17. jauhel water.
18. Powderd Allem.
19. Boraux Powder.
20. Capsine pors plaster.
21. five cents worth of Cattera Pills.
22. five cents worth of Opperating Pills.
23. 5 cent worth of Drop Chock.
24. Horse Foots Acid; Citrid micagnu.
25. Will you please give me a subscription for some medine for a destress in the bowels I am trouble with contopaction very much and I am trouble with indesction and I have a destress of bearing down always and I can't taste anything for it hearts so. Please give me something to removed my bowels right away as I am in great destresss.
26. 5 c antibillous pills and some sweet spirit to send a man into perspiration please say how much to take.
27. Hancode Water.
28. Nuts vomit.
29. centure Liment.
30. Essance Vinella.
31. 5 cents Worth of oppecack and Scuills. 5 c. Capupified oil.
32. 5 cents worth of Red Percipeitate ointment to rub on my little girls head.
33. tinctor of iade.
34. 5 cts. sulpher of zink.
35. 5 c Syrup of Apack.
26. cott Li Oil.
37. Paregoric Elixor 1 ounce, Tincture Telun, Syr. Squills Sulfur Ether ½ oz. of each.
38. 10 cts Balsam Copaive, 5 cts Red lavender, 5 cts Tincture of steele, 5 cts of swett nitre.
39. Balladona Blaster.
40. 1 oz. Nitre, 1 oz. Either, 1 oz. Laudnan, 5 cts cape aleos.
41. 5 cents worth Ines (anise).
42. 5 c. Bastiles, negro head (black fumigating pastiles).
43. Physilican Salve.
44. Baldrian Tee 5 cts.
45. Draggins Bloat, incens, Black candle.
46. 5 cents worth spermesatte.
47. 1 Bottle of Adanson Cough Balsam. And please give a Remendy Something for to break up a person who is chocked up. Something whoes tubes are chocked up.
48. 5 cents seneg leaves.
49. Please give boy a little of Just the thing.



Pocket weighing scale.

POCKET WEIGHING SCALE.

A RECENTLY patented weighing scale for the pocket is well adapted for use by physicians whose practice obliges them to dispense their medicines, or as a part of the outfit of medicine chests. To the bottom of the case is secured a post, with which is connected the scale standard by means of a pin, the lower end of the standard beiug slotted. The upper end of the standard is also slotted to receive the scale beam, mounted on a pivot pin, one end of the scale beam carrying a block to which the pan is secured. The pan is held in horizontal position when in use by a spring on the under side of the beam bearing against the block; but when the scale is to be folded within its case, a quarter turn given to the pan withdraws a catch, and allows the pan to be folded down. A spatula is held against the rear side of the case by a post or pin.—*Sci. Amer.*

Reaction of Cotton-Seed Oil.

ACCORDING to M. Labiche, when cotton-seed oil is treated with subacetate of lead and caustic alkali, it gives almost immediately an orange-red reaction. This is peculiar to this oil, for almond, castor, olive, poppy, rape, and cod-liver oils give a milky mixture, which is alo the case with butter when thus treated. The author mixes equal parts of the oil and a saturated solution of neutral acetate of lead, and adds ammonia, stirring briskly. The acetate decomposes, and the nascent oxide reacts upon the oil. Then the red color appears. After standing, the surface turns orange-red, and the lower portion becomes grumous. If 20 per cent of cotton-seed oil be present, the coloration appears at once; lesser quantities show on the surface after the mixture has remained standing for a time.—*L'Un. Pharm.* and *The Analyst.*

Tongate of Soda.—The *National Druggist* publishes a query from S. M. Meadows, of Milwaukee, Wis., as to the nature of tongate of soda. Tungstate of sodium is probably meant—sometimes used for rendering fabrics fireproof.

* From Mierzinski: "Die Riechstoffe." 8vo. Weimar, 1888.

Opium Assay.

MESSRS. E. F. TESCHEMACHER and J. DENHAM SMITH have contributed a lengthy paper to the *Chemical News*, in which they review most of the various recent methods of opium assay, including those of the newer pharmacopœias, that of Dr. Squibb, Prof. Flückiger and others, and assert that none of these processes extract as much morphine from opium as that which they have themselves devised. The paper is too lengthy to be reproduced here in full, and it is impossible to argue in the face of figures prevented. Only a critical examination of the author's process can establish the justice of their claim. They say themselves that they invite and shall welcome experimental criticisms on their method, but "must be pardoned for neglecting to notice *obiter dictu* guesses, or opinions unsupported by experimental proof."

The authors describe their own process, concisely, in the following manner:

1. Thoroughly exhaust 200 grains of opium (if the sample permits this amount) with warm distilled water.

2. Concentrate this watery extract to a thin syrup, in a shallow dish, over a water-bath, which the authors prefer should not boil.

3. Transfer this thin syrup to a suitable flask which permits the use of a soft cork, using a few drops of water successively to wash out the dish. Add to the contents of the flask 50 fluidgrains [about 53 minims U. S. measure at about 72° F.] of alcohol, spec. grav. about 0.820, and about 600 fluidgrains [633 minims U. S.] of ether. Mix gently, but thoroughly, and then add some 50 fluidgrains [53 minims U. S.] of ammonia, spec. grav. 0.935.

4. Shake the contents of the flask well to precipitate the alkaloids in arenaceous crystals, with occasional agitation during the ensuing eighteen hours.

5. Transfer the contents of the flask to a vacuum filter, and permit all the adherent liquid to be drawn away, washing out the flask with "morphiated spirit" (see below), and continue its use till the liquid passes colorless. Now wash with morphiated water, till this also passes colorless.

6. Now dry, slowly at first, finishing at 212° F. Transfer the dried substance to a mortar, reduce it to a very fine powder, and digest it thoroughly in benzene [benzol], to dissolve the narcotin and such of the opium alkaloids, other than morphia, which may be present.

7. Transfer this mixture to a vacuum filter, wash out the mortar carefully with benzene, which use to wash the powder thoroughly. This, then, will be morphine, free from other opium alkaloids and narcotin, but still containing coloring and possibly other organic matters, to the extent of 3 to 10 per cent. Dry and weigh this powder.

8. Now ascertain the percentage of crystallized morphine by titration of this powder with standard hydrochloric acid and litmus as the indicator, by weight. This acid is so made that 1,000 grains by weight shall exactly neutralize 100 grains of pure morphine crystallized from water, washed with ether, and gently dried finally at 212° F.

Preparation of Morphiated Spirit.—Digest a large excess of morphine in alcohol of 80 per cent, for several days, with frequent agitation. Filter for use.

Morphiated Water.—Proceed as for the preceding, substituting water for alcohol.

As an illustration of how far the processes of assay used by other analysts differ from that of the authors, the latter mention the fact that there is a universal complaint among those who have opiums tested that "Teschemacher and Smith are always too high." Further the authors say: "In illustration of the above, some friends of ours recently shipped ten cases of opium to New York, averaging 10.20 per cent morphia [of course, as determined by the authors' method]. Of these ten cases, six were rejected as containing less than 9 per cent morphia. We hear further that these rejected ones yield 7.40 to 7.98 per cent; this second place of decimals, instead of 8 per cent, points to an accuracy which will, we fear, be for a long while the distinctive characteristic of the New York Customs' analysts. If they be correct, the happy consignee will secure four chests at 13.5 per cent morphine, instead of 10.20 per cent—a gain of 3.30 per cent, solely due to the lawful action of the Customs of the United States."

The authors do not seem to like the expression "assay of morphia," which Prof. Allen uses. They say: "Do not let us Englishmen corrupt our own language. Surely, "assay" to a chemist involves the idea of furnacing of some sort. Regarding this criticism, we would say that each branch of literature or science is constantly trying to simplify and render more concise and pregnant the terms it has to use to denote certain matters or facts. "Assay of opium" will certainly never be associated, in the mind of any chemist, with furnacing; and it surely is more expressive than "Valuation of opium," and briefer than "Determination of morphine in opium" or similar terms.

Diabetic Foods.—According to Dr. Harrington, of the Harvard Medical School, the diabetic foods commonly sold contain but a trifle less starch than ordinary bread, and he points out the danger which attends their use by persons suffering from diabetes and who accept as true the assertion that these foods are non-starchy.

On the Determination of the Amount of Morphine in Opium.

ROWLAND WILLIAMS, F.C.S., etc., publishes the following paper in the *Chem. News* as a contribution to the question recently raised by Messrs. Teschemacher and Smith, regarding the best process of assaying opium. An abstract of the paper of the two last-named authors is given elsewhere in this number. The importance of the subject makes it advisable to give the present paper, in abstract, in the same number:

Having had considerable experience in the examination of opium for the percentage of morphia, I have read with much interest the paper by E. F. Teschemacher and J. Denham Smith, which recently appeared in the *Chemical News* [see this Journal, opposite column].

About two years ago, two Persians came to work in my laboratory, with the object of ascertaining the most reliable method for estimating morphia in opium. When in their own country, these gentlemen are engaged in the opium trade, and wished to be able to guarantee the amount of morphia in each consignment before shipment, so as to avoid disputes and allowances, as far as possible. My Persian pupils stayed with me about six months, during which period we examined a large number of samples of opium, and investigated some of the most promising processes I could find in various works which I consulted on the subject. A short account of a few of our results may, perhaps, be of interest to some of your readers.

At first we worked almost entirely by the *British Pharmacopœia* process, and our experience was very similar to that of Teschemacher and Smith, viz.: fairly concordant amounts of morphia could be obtained from duplicate estimations, but the morphia was by no means pure. We always employed a carefully graduated cylinder, marked at 1,040 fluidgrains, for measuring the aliquot portion of 1,400 fluidgrains, as a "wide-mouthed 6-ounce bottle" is obviously quite unfit for such a purpose. In other respects, we followed the directions as closely as possible. We were in the same predicament as Teschemacher and Smith with regard to taking 1,040 grains of the filtrate, as there seems no clear reason why this quantity should be regarded as equivalent to 100 grains of the opium; nevertheless, 1,040 grains were always used in our estimations. We made two or three dozen determinations of morphia by the B. P. process, but finally abandoned it altogether, as we had already gained sufficient experience to warrant our coming to the conclusion that any method in which lime is employed is, for many reasons, unsuitable for the estimation of morphia in opium.

We next turned our attention to Flückiger's method. Several samples were examined by this method, and it must be admitted that it generally yields very clean, white crystals, being in this respect a decided improvement on the B. P. process. This is, no doubt, partly due to the preliminary digestion of the dried opium with ether, which is said to remove narcotin, wax, and coloring matter, and partly owing to the non-employment of lime, which, I believe, generally produces a dark-colored morphia. Afterwards we tried the United States official method, which is, in many respects, very similar to the B. P. process, and in our hands yielded almost the same results.

In the following table are given results obtained from four samples examined by the different methods:

	Morphia per cent.		
	British.	German.	American.
Sample No. 1	10.8	10.2	11.1
" " 2	10.5	10.0	10.8
" " 3	7.4	7.1	8.1
" " 4	12.2	10.6	11.9

A glance at these figures will show that in every case the German method gave the lowest result, and the American the highest, except in Sample No. 4.

Our work in connection with these three processes had by this time convinced me that it was undesirable to take aliquot portions of filtrates, as this method of operating is undoubtedly liable to cause serious errors. I therefore began a series of experiments, in which weighed quantities of the opium were thoroughly exhausted with water, and the extracts concentrated to a syrup, at a gentle heat on the water-bath, before precipitating the morphia. My general plan of procedure was to place 100 grains of the opium in a porcelain basin, add 1,000 grains distilled water, and macerate frequently with a rubber-tipped glass rod. The digestion was allowed to go on all night, and the next day the strong aqueous solution of the opium, containing nearly all the morphia, was passed through a Swedish filter, taking care to leave the bulk of the insoluble matter in the basin. This residue was stirred up with several successive small quantities of water (each acting for ten minutes), and the total extract evaporated on the water-bath until it became of a syrupy consistence. This was washed into a suitable bottle, using the smallest possible quantity of water for the purpose: 100 grains of alcohol (sp. gr. 0.825) and 300 grains of ether (sp. gr. 0.730) were then added, and the bottle gently rotated for a few minutes. Finally, 30 grains ammonia (sp. gr. 0.880) were added, the bottle frequently shaken, and allowed to stand twenty-four hours. The morphia was then thrown on to

a weighed filter, and washed as completely as possible, first with morphiated spirit, and then with morphiated water, as suggested by the late Mr. E. F. Teschemacher. The filter was then dried at 212° F., and the increase of weight represented the amount of crude morphia in 100 grains of the opium. . . .

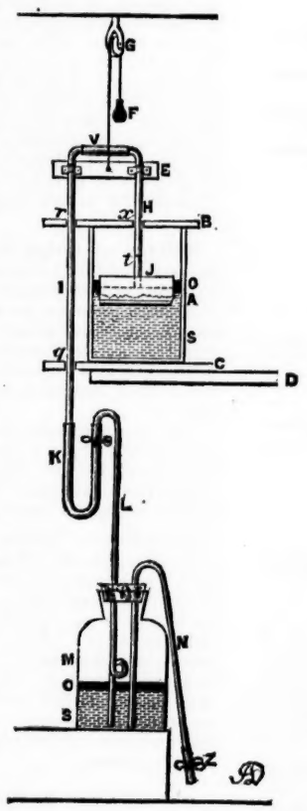
During the last few months, I have slightly altered my method of estimating the amount of morphia in samples of opium which have occasionally been sent to my laboratory for examination. I now prefer to work on at least 200 grains of the opium (if that quantity be available), digest all night with ten times the amount of cold distilled water, and, eventually, completely exhaust with cold water in the manner above described. It will be noticed that I say with *cold* water, because I think this preferably to using warm distilled water as recommended by Messrs. Teschemacher and Smith. There can be no reasonable doubt about cold water extracting all the morphia from opium, and I fail to see the advantage of employing warm water, as there is then a risk of dissolving certain other ingredients of opium which are more soluble in warm water than in cold. Even if these impurities are removed by the subsequent washings with the various purifying agents, it seems a pity to introduce them at all if their presence can be avoided.

To return to the description of my present method. The total aqueous extract is evaporated on the water-bath to a small volume, transferred to the precipitating vessel, 100 fluidgrains alcohol (sp. gr. 0.825) and 600 fluidgrains ether (sp. gr. 0.925) are added, and the remainder of the process conducted as usual.

With regard to the late Mr. E. F. Teschemacher's process, published in the *Chemical News* (Vol. xxxv., p. 47), I must confess that it has always seemed to me to be so complicated that I thought loss must inevitably ensue at some stage or other; consequently, I have very rarely employed it, but have latterly placed implicit reliance on the method which I have just described, and which, I believe, gives very accurate results. I propose, however, in the case of future samples of opium, to try the effect of purifying the precipitate of morphia by digestion with benzin, previous to the final weighing and titrating with acid, as Messrs. Teschemacher and Smith attach so much importance to that point.

Messrs. Teschemacher and Smith mention a case in which duplicate samples of opium were submitted to several chemists after being examined by themselves. All these chemists agreed closely with one another, but they found lower percentages of morphia than Messrs. Teschemacher and Smith. As I have good reason for believing that I was one of the analysts in question, perhaps I may be allowed to say that my results were obtained by the process upon which, as already mentioned, I have latterly stated my faith.

CHEMICAL LABORATORY, 9 Albert Square, MANCHESTER, March 24th, 1888.



New filtering appliances.

APPARATUS FOR UPWARD FILTRATION.

F. C. J. BIRD, having occasion to filter a large quantity of syrup containing both a ferrous salt and a finely divided precipitate, constructed an apparatus which had the advantages of excluding air and keeping the filtering medium in the most advantageous position, viz., at the surface of the liquid. The apparatus, as described by him in the *Pharmaceutical Journal*, consists of A, a stoneware jar of about 2 gal. capacity, placed on a shelf 5 or 6 feet above the vessel M. It is secured to a board, C, which has a perforation, *q*. B is of wood, 3 in. wide, and with holes, X and I. C, A and B are fastened together by string, or otherwise. J is the filter, consisting of a circular box, closed at the top and open at the bottom, and about ¼ in. less in diameter than A. J is divided by a partition into two chambers, the upper one being air-tight. The tube *t* passes through this chamber and communicates with the lower half of J, and is connected with a glass tube, H, by means of rubber tubing. Three layers of filtering medium—calico, paper, and flannel (the latter being outside)—are fixed over the mouth of J. E is a bar of wood, to which the glass tubes, H and I, are attached, the system of tubes being counterbalanced by the weight F, which should be so arranged that J may fall to the bottom of A when it contains no fluid. K is a piece of rubber tubing. L is a glass tube reaching nearly to the bottom of M, and having a valve formed of a single turn in the tube.

A being filled with the liquid to be filtered, a cork is inserted in the lower end of T and the rubber tube V detached from I, the system of tubes is then filled with some bright liquid, the connection by means of V is again made, and a layer of ¾ inch of colorless petroleum oil is poured on the surface of the liquids in the two vessels (O and O) when the liquid to be filtered requires to be protected from air. By removing the cork from the lower end of T, filtration commences. All joints must be bound with waxed thread or wire, and thick rubber tubing be used to prevent its collapse. J should be well varnished with shellac.

FILTERING PERFUMES.*

WHEN larger quantities of perfumed liquids are to be filtered, which would be injured by being exposed in open filters to the air, an apparatus like that here shown will be found very serviceable.

A is a cylindrical vessel with a neck passing through the stopper in a receptacle *C*, which is connected, by means of the tube *d*, with a filter pump. Into *A* a few disks of felt are carefully packed near the lower end, and a reservoir containing the liquid to be filtered is adjusted so as to keep the cylinder *A* suitably supplied. On starting the filter pump, the liquid will be aspirated through the felt and thereby filtered. The first portions of the filtrate, if not quite clear, should be returned.

FILTERING FLASK.

F. ALLIHN has devised a new filtering flask for use with the filter-pump. Its neck is ground to receive a glass funnel, which serves as a stopper, and the connection with the pump is established by means of a lateral tube.

These flasks, with corresponding funnels are now manufactured in several sizes, and may be had through dealers in chemical apparatus.—*Zeitsch. f. Anal. Chem.*

Antifebrin in Headache.

DR. W. FAUST praises the prompt effects of antifebrin as a remedy in almost any form or kind of headache, provided it is taken in sufficient amount. He states that he finds it difficult, or rather useless, to discriminate between the various causes of headache, so far as this remedy is concerned, as it gave relief in nearly every case. Its most prompt action is observed in those cases where the pain is due to an irregular distribution of blood within the vessels of the head, and particularly that which is due to engorgement. He declares it the most effective agent to relieve alcoholic headache. It should be given in full doses from 8 to 16 grains.

The editor of the *Industrie-Blätter*, in commenting upon the preceding report, recommends caution in the use of the remedy, and believes that it should not be used promiscuously or without the advice of a physician. He quotes the case of a woman residing in Berlin, who was attracted by an advertisement recommending antifebrin against "Katzenjammer," and took 4 Gm. (60 grains) of it in two doses, at short intervals. After three hours, she lapsed into a deep coma, from which she was, however, brought back by strong stimulants.

Remedy for Lumbago.—Dr. C. G. Hollister, of Meadville, Pa., recommends the following as a specific for lumbago:

Iodide of Potassium, Bromide of Potassium	of each,	℥ ss.
Tincture of Colchicum Seeds		f. ℥ iss.
Syrup of Orange peel		f. ℥ ij.
Water	enough to make	f. ℥ vi.

M. One teaspoonful to be taken 3 to 4 times daily, or increased up to causing loose movements of the bowel.—*Med. and Surg. Rep.*

* After Mierzinski: "Die Riechstoffe." 8vo. Weimar, 1888.

The Composition of Carbonate of Ammonium.

AT a recent meeting of the School of Pharmacy Students' Association (London), Mr. A. E. Chaston read a paper on "Commercial Carbonate of Ammonium."

The author first proceeded to describe the various compounds which ammonia forms with carbonic anhydride and water, viz., the normal carbonate $(NH_4)_2CO_3,H_2O$, the half acid carbonate,

$$(NH_4)_2CO_3,2NH_4HCO_3,2H_2O,$$

the acid carbonate NH_4HCO_3, the super acid carbonate of Rose $(NH_4HCO_3)_4CO_3$, and the carbamate

$$NH_4NH_2CO_3.$$

Passing to the consideration of the commercial salt, he mentioned the formulæ that had been assigned to it by various chemists, and pointed out that whereas in the British Pharmacopœia of 1867 it was required to contain 28.8 per cent of NH_3, corresponding to the formula $(NH_4HCO_3)_2NH_4NH_2CO_3$, it is now required to contain 32.48 per cent, which corresponds with the formula assigned to it by Divers, viz., $NH_4HCO_3,NH_4NH_2CO_3$. In order to ascertain whether the salt as usually supplied to pharmacists meets the requirements of the Pharmacopœia, he had obtained specimens from various sources, and estimated them with the following results, which show that they all fall short of the standard fixed upon by that authority:

Salt.	Percentage of NH_3.	Impurities.	Odor when neutralized.
Ordinary.	28.83	Trace of chlorides.	None.
"	30.89	Trace of chlorides and sulphates.	Empyreumatic.
"	29.95	Slight trace of chlorides.	Slightly aromatic.
"	30.3	Slight trace of chlorides.	Slightly aromatic.
"	30.3	None.	Slightly aromatic.
Resumblimed.	30.1	Trace of chlorides.	Slight.
"	31.16	None.	None.
"	30.1	Slight trace of chlorides.	"
"	29.6	Slight trace of chlorides.	"
"	30.15	Slight trace of chlorides.	"

The portions operated on were carefully selected from the interior of the lumps, quickly weighed, and put into an excess of volumetric solution of oxalic acid; after boiling to expel CO_2, the excess of acid was titrated by volumetric solution of soda. The specimens were also examined qualitatively for impurities, and for odor after neutralization, with very satisfactory results.—*Pharm. Journ.*

Note on a Test for "Hydronaphthol."

MR. ALFRED L. BEEBE, Assistant Chemist of the New York City Health Department, has communicated the following note to *The Analyst* (London, March, 1888).

"Hydronaphthol," so called, has lately come into considerable prominence as an effective antiseptic for use in the preservation of various food products. A reliable method for its detection is therefore desirable. So far as the writer is aware, no distinctive test has as yet been given for the detection of this substance when present in minute quantities, and the results of some experiments in this direction may therefore prove of interest.

"Hydronaphthol," as is well known, is really a trade name for β naphthol. It is sparingly soluble in cold, much more readily in hot water, and is easily extracted from its water solution by shaking with ether. The ethereal extract, evaporated to dryness and taken up with hot water, or the water solution direct in absence of interfering substances, made slightly alkaline with ammonia, cooled, and slightly acidified with dilute nitric acid, gives, on addition of a drop of fuming nitric acid, or a nitrite, a beautiful rose color, analogous to that developed in the test for nitrites in water.

In making the test, care should be taken that the ammonia and nitric acid are respectively added in slight excess only, and that the nitric acid used is so dilute as to cause no heating of the solution by its combination with the excess of ammonia present. If these precautions are not observed, a dirty salmon color is apt to be devoloped by the addition of the fuming nitric acid, and the distinctive character of the test thereby destroyed.

The reaction is one of extreme delicacy, one part in ten thousand of hydronaphthol being readily detected.

Experiments are now being made by the writer to determine the limit of the delicacy of the test, and also to arrive at a practical method for separating "hydronaphthol" from food-products to which it may have been added, in a condition suitable for the application of the test outlined above. The results of these expriments, if successful, will be published in due course.

Fluid Extract of Bursa Pastoris, in doses of ½ drachm, is said by Dr. Ehrenwall to be equally serviceable as ergot in controlling uterine hemorrhage.

The Production of Peroxide of Hydrogen during the Oxidation of Terpenes.

REGARDING the production of peroxide of hydrogen, which has long been known to occur during the oxidation of terpenes and essential oils, Prof. C. T. Kingzett publishes the following data, which give an account of the rate of oxidation, and the quantity of peroxide of hydrogen produced.

Some years ago, I subjected samples of camphor oil to oxidation by air in the presence of water, with a view of ascertaining if the products are identical with those which are furnished by terpenes generally, and found that peroxide of hydrogen was freely produced. This result was in itself a proof that the oil contained one or more terpenes, because I had previously proved that all terpenes yield peroxide of hydrogen when they are oxidized in this manner. Since then, I have on several occasions employed camphor oil on a large scale in manufacturing operations as a substitute for ordinary turpentine or eucalyptus oil in my process of preparing disinfectants, with fairly satisfactory results. In one experiment there was obtained from 120 gallons of the oil during 52 hours' oxidation, a quantity above 1,000 Gms. of peroxide of hydrogen, its capability of producing that substance remaining, of course, anything but exhausted. In another trial, a quantity of 320 gallons, during a similar period, yielded 3,379 Gms. of peroxide of hydrogen (calculated as pure H_2O_2), the density of the oil having increased to 925. This partially oxidized oil yielded a further quantity of H_2O_2, nearly equal in amount to that originally produced during a further period of oxidation, but after that time, although it still continued to yield the peroxide in diminished amount, the oxidation proceeded much more slowly than happens with turpentine oil at that stage.

In another and more recent trial in which 110 gallons of camphor oil was submitted to oxidation during 100 hours, 74 gallons of partially oxidized oil of sp. gr. 925 resulted, and this, upon further oxidation during 246 hours, yielded 62 gallons of oxidized oil of sp. gr. 950. A sample of this oxidized oil is now produced.

Fallacy of Color Reactions for Aconitine.—Various authorities have described certain color reactions which were said to be obtained by treating aconitine by different reagents, such as phosphoric acid, sulphuric acid with sugar, phospho-molybdic acid and ammonia, etc. A. Jürgens has, however, recently shown that *pure* aconitine does not yield any color reactions at all. The only reliable test of the identity of aconitine is its physiological effect.

The author found the composition of pure aconitine to correspond to the formula $C_{33}H_{47}NO_{12}$. On evaporating the alkaloid from an ethereal solution, it crystallizes in anhydrous, columnar crystals.—*Inaug.-Diss.* (St. Petersburg), *Zeitsch. f. anal. Chem.*

Detection of Gentian-Violet and Fuchsin in Wine.—According to Bernède, both gentian-violet and fuchsin may be detected in red wines by shaking 10 C.c. of the suspected wine with 5 C.c. of a reagent prepared by dissolving 10 Gm. of carbolic acid in 1 Gm. of alcohol and 60 Gm. of ether. If the wine is pure the ethereal phenol solution will form a colorless layer over the wine, but if the above-named coloring matters are present, the layer will have a red or violet tint. This test is said to detect so small a quantity as 0.1 milligramme of fuchsin, or 1 milligramme of gentian-violet in 1 liter of wine.—*Dingl. Polyt. Journ.*

Quantitative Estimation of Chloroform.—L. de Saint-Martin recommends the following method of estimating the quantity of chloroform in chloroform water or other liquids. It depends upon the decomposition of the chloroform by means of alcoholic potassa, and the subsequent estimation of the chlorine as chloride of silver.

Introduce 10 C.c. of the chloroform water into a strong glass tube closed at one end, and drawn out at the other, then add 2 C.c. of very concentrated solution of potassa, and 20 C.c. of alcohol. Seal the open end of the tube in the flame, and heat the glass tube in a water-bath during three hours. Then allow it to become cold, break off the pointed end, and transfer the contents to a beaker. Wash the tube with distilled water, and add this likewise to the beaker. Now titrate the solution, in the usual way, with a decinormal solution of nitrate of silver.

The author has found that a saturated chloroform water [presumably at 15° C., though the author omits to state the temperature] contains 0.64 Gm. of chloroform in 100 Gm. or 1 in 156. Prof. Regnault had given the rate of solubility as 1 in 111. [Most authorities give it as 1 in about 200 parts.]

New Mass for the Polygraph.—The following has recently been recommended as a good combination for preparing a mass for the polygraph:

Treat 100 parts of isinglass with cold water until it is softened; then boil it with 400 parts of water until it is practically dissolved, and add 600 parts of glycerin. Strain the mixture, and pour it into the forms. One-half of the isinglass may be replaced by gelatin.—After *Polyt. Journ.*

Bleaching Wood with Hydrogen Peroxide.—The advantage of this method of bleaching, recently recommended by Dr. P. Ebell, is that the wood retains its original structure. A previous treatment is not advisable, except in the case of fresh wood, when steaming causes a saving in the peroxide. Small pieces of wood are bleached in a few days. The bleach-bath is best kept alkaline with ammonia. If it is heated to 34°, the wood bleaches more rapidly, but this entails a loss of peroxide through evolutions of oxygen. Moreover, the final effect of using a cold bath is more satisfactory. After slowly drying, the wood appears perfectly white, a plane surface remains unchanged, and the curls and streaks, though now colorless, are nevertheless more distinct than previous to bleaching. —*Jour. Soc. Chem. Ind.*

Menthol in Phthisis.—Mr. A. J. Buhay reports, in the *Edinburgh Medical Journal* for January, the account of a favorable experience with a 20% solution of menthol in laryngeal and pulmonary phthisis. The solution is injected with a special syringe into the larynx or trachea with the aid of a laryngeal mirror. In the case of laryngeal phthisis, two or three injections, of 15 minims each, are made at each sitting. Deep inspiration should follow the injection, whereby the anæsthetic effect is increased. No untoward effects follow and the treatment should be repeated once or twice daily for about two months. If possible, the patient should hourly, during the day, inhale 5 or more minims of the same solution added to a pint of boiling water or to a pledget of cotton-wool placed in a respirator. The treatment causes pain and discomfort in the larynx to disappear and relieves dysphagia. Ulceration ceases and smooth cicatrices result.

Calycanthus glaucus (Carolina Allspice).—Dr. Eccles writes, in the *Brooklyn Medical Journal* for March, 1888, that the shrub within whose seeds he discovered the alkaloid was, during the late civil war, used in decoction of roots, leaves, and bark by the Confederate soldiers for the cure of intermittent fever, and, as claimed, with success. It is still used in domestic practice by the natives of the region where it grows. A fluid extract of an allied species is already upon the market, so that somewhere in the country it is being prescribed for some purpose. If in its crude form it has proven of advantage, this new concentrated form should be still more efficient. The seeds contain nearly two per cent of this alkaloid, and a smaller amount of probably two others. The odor of the volatile one of these last is distinctly that of pyridine and as it is unlikely that two should exist having the same smell, we may at present assume it as probably such.

Toxic Effects of Antipyrin.—Dr. A. Sturge, of Nice, reports the following unusual effect of 5 grains of antipyrin upon a lady liable to migraine. Five minutes after the dose was taken the "deadly sickness" characteristic of the migraine seemed to give way and an "expanding sensation" was felt, passing upward from the stomach, violent sneezing followed, the face and eyes became suffused, and tears and nasal mucus flowed freely. Breathing became difficult, and attended with a sense of suffocation, and these was complete inability to remain in a recumbent posture. A violent cough with free expectoration followed. After these symptoms had lasted a half-hour, itching of the inner surface of the thighs and an eruption of urticaria supervened and extended to the abdomen. These was a coppery taste in the mouth and a smell of the same character. The pulse was quick and very full and there was tinnitus aurium. These symptoms lasted about ¾ hour.—*Br. Med. Jour.*, February 3d, 1888.

Tannin Wool.—Benjamin Ward Richardson writes in the *Asclepiad*, No. 17, 1888, that in treating ozæna and other diseases attended with fetid odors, tannin wool turns out to be of great practical service. I had thought that the manufacture of this preparation had become a general fact; but as many medical friends have at various times written for the method, it may be of service to give the details here.

To make tannin wool, add to distilled water heated to 148° F. pure tannin up to saturation, stirring carefully all the time. When the water is saturated, add to it pure cotton wool, bit by bit, until all the solution is taken up by the wool. Lastly, put the saturated wool in an evaporating dish, and dry it slowly until it is quite dry. It is then ready for use, but must always be kept in a closed bottle. It must be neatly teased out before being used; but it is well to keep it in the rough state.

A good stock of tannin wool is at all times a useful thing to keep at hand. It is a ready styptic and possesses good antiseptic properties. It can easily be iodized by making an ethereal solution of iodine, saturating a portion of the cotton with the solution, and allowing the ether to evaporate. One grain of iodine to an ounce of the cotton is sufficient to make a very good specimen; and an iodized cotton made in this proportion is one of the best applications for bed-sores that can be adopted. It rarely irritates, it removes odor, and often favors the healing of the sore.

AN ELECTRIC THERMO-REGULATOR.

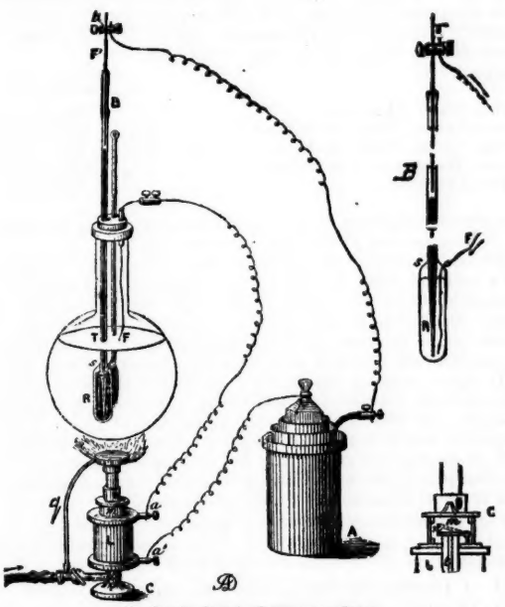
LOVITON'S apparatus, which was introduced about the middle of last year, and regarding which we have had several inquiries, is constructed in the following manner:

The essential portions are:

A. The battery. *B.* The manometer. *C.* The burner.

Any kind of battery or cell will answer the purpose, provided it has enough power. A Delaurier element is recommended by the inventor. Probably a medium-sized Bunsen element will answer the same purpose.

The manometer (*B*) consists of an elongated, thin-walled glass bulb *R*, through the upper portion of which is fused a tube open at both ends, but contracted at its lower end. A few drops of ether (or other easily expanding liquid) are first poured down the tube, and afterwards enough mercury to fill the bulb as far as possible. The few drops of ether will float on the surface of the mercury and be completely protected from access with the external air. Of course, any material elevation of temperature to which the bulb containing the mercury is exposed causes the ether to become vaporized, and the vapor, expanding with increase of temperature, depresses the mercury in the bulb, while that in the tube correspondingly ascends. A platinum wire, *F*, passes through the wall of the bulb and dips into the mercury. In the upper orifice of the tube, a platinum wire, *F*, is adjusted at such a height that the mercury, on expanding, will reach it at the temperature which is to be maintained constantly.



Loviton's electric thermo-regulator.

The burner *L* consists of the interior gas-tube *t* (see separate small cut), and an exterior armature, *L*. Over the orifice of the interior tube, a very light disk of iron, *n*, is attached by means of a hinge. When the electric circuit is closed by the mercury in the tube *B*, reaching the platinum wire *F'*, the gas tube becomes magnetic and attracts the disk of iron, which then closes the exit of the gas. As soon as the current is interrupted, the disk is raised again by the mere pressure of gas, and the burner is automatically relighted by a small, independent flame furnished by the tube *q*.

The application of the apparatus is shown, in a general way, in the illustration at the left, where a flask is supposed to be the receptacle in which a liquid is to be maintained at an even temperature.

The manometer and an accurate thermometer having been placed in the liquid, and the flame of the burner lighted, the rise of temperature is watched until it reaches the desired point, when the wire *F'* is pushed down so as to just reach the mercury in the manometer tube, and it is then firmly adjusted at this height. The electric current will then extinguish the flame of the burner, and as soon as the temperature falls slightly, the flame will become relit. This will take place alternately for any length of time, so long as the bulbs of the manometer and thermometer remain immersed in the liquid.

In practice, of course, it will be found impossible to keep the temperature exactly at an invariable point. There will always be slight fluctuations above and below it, but this is immaterial.—After *Journ. de Pharm. et Chim.*

Freshly Powdered Ergot.—Prof. Pajot carries in his obstetric bag an ergot-mill, resembling a small coffee-mill, compact in form, and designed to grind ergot freshly for use. He thinks that only the freshly powdered drug is reliable. [It is evidently a mill with two cranks.—ED. A. D.]

Notes on Essential Oils and Allied Products.

(From the Bericht von Schimmel & Co., of Leipzig, April, 1888.)

"*Algalia*" is the fanciful name of a mixture, sold on the American market, which consists, according to Sch. & Co., of about 80 per cent of oil of cedar or oil of copaiba, with about 20 per cent of oil of musk seed.

Oil of Almonds, expressed.—It is, of course, well known to some, but by no means to all of our readers, that the expressed oil of almonds, or "sweet oil of almonds" of the market is not exclusively derived from almonds, but that manufacturers also use the kernels of peaches and apricots as a source of the oil. [Conscientious manufacturers quote the oils obtained from the different sources separately. Others again carry on their lists only the "almond oil," without specifying what it was made from.]

Up to within a short time ago, Messrs. Schimmel & Co. (according to their own statement) had never been called upon to put themselves on the defensive regarding the quality of their product. The special importance, however, which has recently been attached to Hübl's test—the so-called iodine-number indication, the relative capacity of an oil to combine with iodine—has rendered it necessary to show its possible fallacy. In the preparations for Hübl's test, it is necessary to make a solution of iodine and of mercuric chloride in alcohol, the iodine value of which is afterwards determined by hyposulphite. Schimmel & Co. point out that the iodine-mercurial solution is liable to great alteration during the first few hours. If this alteration is taken in consideration, or allowed for, the results obtained by them upon oils of different origin, and pressed by themselves, was as follows:

"*Almond Oil*"	Iodine Number.	Spec. Grav.
from Bitter Almonds	96.5	0.918
from Syrian Peach or Apricot Kernels (1886)	98.9	0.918
from Syrian Peach or Apricot Kernels (1887)	99.2	0.918
from Hungarian Peach Kernels	103.4	0.919
from Pea-nuts	92.4	0.918

The determinations were carried out according to Benedikt ("Analyse der Fette und Wachsarten").

Without denying in general the scientific value of Hübl's method, Sch. & Co. yet show that it does not yield reliable results in the above case. The iodine-number of pea-nut oil, which is one of the principal adulterants of almond oil, is too near to the iodine number of the different commercial almond oils, and the latter do not sufficiently agree among themselves to render any conclusion based on these numbers trustworthy. Besides, a mixture consisting, for instance, of equal quantities of pea-nut and Hungarian peach-kernel oil would yield an iodine-number which is unobjectionable; and by mixing equal quantities of Syrian peach-kernel oil and pea-nut oil, the iodine number of true oil of almonds would be attained.

Oil of Ambrette Seeds.—This product, which has appeared in the American market, is declared by Sch. & Co. to consist of oil of copaiba flavored with musk seed.

Oil of Balsam of Tolu.—This oil, only introduced recently, promises to be of great utility in perfumery, but is very expensive, costing about $3.50 per ounce. It has the spec. grav. 0.945, contains a terpene $C_{10}H_{16}$ (so-called tolene), also ethers of cinnamic and benzoic acids. Cinnamic alcohol appears to be likewise present.

Oil of Betel Leaves.—The oil distilled at Leipzig from betel leaves imported from Siam yielded a distillate having a spec. grav. of 1.020, while the oil distilled from the leaves in Java is much lighter, having the spec. grav. 0.943. The reason of this difference is probably this, that the apparatus and process employed in Java is incapable of driving out the higher-boiling portions. For this reason it is illogical, in this and similar cases, to regard an oil distilled in the East, at the place of growth, as superior to one distilled from the same substance in Europe or elsewhere, where the technical appliances and facilities are much better. It is stated that the next edition of the Pharmacopœia Neerlandica will recognize this oil as an officinal article.

Oil of Boldo.—Good boldo leaves contain more than 2% of oil. The latter has a pepper-like, narcotic odor, and a mild, indifferent herbaceous taste. Its spec. grav. is 0.918. It boils between 175°–250° C., it contains a terpene ($C_{10}H_{16}$), and several oxygenated compounds.

Oil of boldo has been used successfully in affections of the liver, in gall-stone, and also in gonorrhœa and other troubles.

Oil of Camphor.—The crude by-product obtained during the production of camphor in the East, and from which *safrol* is now extracted on a large scale, is shipped to Europe in constantly increasing quantities. Schimmel & Co. received during 1887 not less than about 600 tons. This firm states that they have tried to obtain the body announced by Yoshida as existing in that fraction of the crude oil which boils between 208° and 222° C., and which this author called *camphorogenol*, but even after eight repeated fractionations, they were unable to obtain a homogeneous product. They have come to the conclusion that the higher boiling fractions of the crude camphor oil contain, besides camphor, safrol, eugenol, and a sesqui-terpene ($C_{15}H_{24}$), the substance designated by Wallach *terpineol*. Though this has not yet been isolated, yet its presence is rendered almost certain by the fact that fractions boiling between 214° and 220°, when boiled with diluted sulphuric acid, yield large quantities of a terpene ($C_{10}H_{16}$) in which *terpinen* could be proven to be present. Besides, these fractions yielded terpin-hydrate, when treated with diluted nitric acid and alcohol.

Oil of Cananga.—After the rectification of a large quantity of this oil, the residue left in the still was found to contain benzoic acid. This exists not only in the oil of cananga (obtained from Java and Siam), but also in oil of ylang, probably in form of an ether. It is, therefore, probable that both of these oils will eventually be made synthetically.

Oil of Cedar (-Wood).—The employment of this useful oil in the manufacture of soap, where it is used as a basis of other perfumes, and may almost be regarded as a sort of "oil of sandal wood for the middle classes," has increased to large proportions, so that Sch. & Co. often find difficulty in procuring a sufficient amount of cedar wood chips. It has become necessary to pay better prices for the latter, to prevent the lead-pencil manufacturers from burning them. The American oil of cedar is not distilled on purpose, *per se*, but is obtained as a secondary product, in the drying rooms of the cedar wood in the factories.

Oil of Cedar Leaves.—This oil, obtained by distillation from the leaves of the same tree (*Juniperus virginiana*) which yields the preceding oil, is now again obtainable. It is entirely useless for perfumery. In odor it resembles oil of savine, with which it is said to share the same medicinal properties.

Oil of Cinnamon, Ceylon.—Schimmel & Co. draw special attention to two simple and practical tests which may be used to distinguish genuine oil of Ceylon cinnamon. 1. When dropped into water, the oil must sink, as it is specifically heavier. [This would, however, not distinguish it from several other essential oils, not even from oil of Chinese cinnamon.] 2. It must *at once* produce the impression of exceeding sweetness, far superior to that of sugar, and this sweet taste must persist to the very end. In low-grade sorts, a clove-like taste is first developed, which is followed only after some time by a sweet impression. An oil of this kind is not worth more than oil of cassia, but large quantities of it are exported from Ceylon.

Oil of Citronella.—During the year 1886–1887 (October 1st to September 30th), the quantity of this oil shipped from Ceylon amounted to not less than 523,214 pounds. More than one-half of this, namely 280,311 pounds, were shipped to New York, about 230,000 pounds to London, and small quantities to other places.

Oils of the Citrus Family.—According to a report of the Italian Statistical Bureau, the number of *agrumi* trees (orange, lemon, and bergamot) in existence is as follows:

In Sicily	10,115,796
In Reggio	4,211,377

and the yield of fruit was as follows:

1883	1,658,542,300
1884	3,011,609,400
1885	2,329,622,600

A large number of experiments have been made to replace the old-fashioned method of hand-pressing by machinery, but without great success. The chief difficulty lies in the irregularity, both in shape and in size, of the fruits. During 1886, the total export of oils of the citrus family from Italy amounted to 277,106 kilos. Adding the home consumption, the total yield may safely be put at 300,000 kilos. Assuming that about 1,500 fruits on an average are required for the production of 1 kilo of oil, the oil industry of 1886 would have absorbed a total quantity of 450,000,000 fruits. During 1887 the export of oils and value of same was as follows:

	KILOS.	VALUE.
Messina	255,812	£5,116,240
Palermo	24,404	339,760
Catania	10,000	157,925
Reggio	45,912	901,824
Total	336,128	£6,515,749

Oil of Cloves.—As stated in previous reports, a large proportion of what is commonly sold as "oil of cloves" is simply "oil of clove-stems." This is quite a common custom—according to Schimmel & Co., who speak presumably on the experience chiefly gained among *continental* houses—among the drug trade, and much less so among perfumers who know how to distinguish between the two kinds.

Oil of Green Cloves.—The prospective introduction of oil of cloves, distilled from the green cloves themselves at the place of growth, has been announced some time ago, but only small lots have been shipped over. And, according to Schimmel & Co., the specific gravity does not appear to be satisfactory. This is only 1.048 at 18° C., while absolutely genuine oil of cloves has one of 1.060.

Oil of Cognac, Artificial.—This is the ether of a fatty acid, and has recently found a new application in the soap industry, for producing a fruity odor. About 100 to 200 Gm. (3½ to 7 oz.) for every 200 pounds of soap produce the same effect as the "polysolve olein" introduced some years ago. The latter, consisting of sulpholeates, causes in cocoa-nut oil soap the formation of similar ethers.

Oil of Crisp Mint.—The American oil is now preferred even to the German, owing to its fine aroma.

Oil of Damiana.—From Damiana leaves, such as they are sold on the New York market, Schimmel & Co. obtained 0.9 per cent of an essential oil of a viscid, greenish oil of a chamomile-like odor, spec. grav. 0.970. In its high boiling portions it contains a blue oil.

Oil of Eucalyptus.—The oil derived from *Eucalyptus amygdalina* is losing its standing, as it has been shown that it contains no eucalyptol at all. Nevertheless, the production of this and other inferior kinds is constantly increasing. On the other hand, the oil of *Eucalyptus globulus* is coming more and more into use, and it is Algiers which seems to be the principal source of production. Of equal value as the Algerian oil is that produced in California (Alameda county) by certain firms engaged in the manufacture of preventives against boiler incrustation. Messrs. Schimmel & Co. have, however, found that it is feasible to carry the eucalyptus leaves to Leipzig and distil the oil there. And it is upon self-distilled oil that the new facts below recorded are based.

The absolutely genuine oil of *Eucalyptus globulus* has yielded, on examination, very interesting and surprising results. In general, it agrees with that which is sold in the market as distilled in Africa or California. It has the spce. grav. 0.925, and turns the plane of polarization five degrees to the right. The spec. grav. of the before-mentioned commercial oils varies between 0.915 and 0.925. They are all dextrogyre, though in different degrees. In six different samples, the percentage of eucalyptol was found to vary between 50 and 70 per cent. Eucalyptol is optically inactive, and this property may be regarded as one of the criterions of the purity of the oil.

While distilling the leaves of *Eucalyptus globulus*, Sch. & Co. noticed the occurrence of aldehydes of the fatty acids. Valeraldehyde was positively identified; butylaldehyde and capronaldehyde appear likewise to have been present. The larger proportion of these substances was dissolved in the aqueous portion of the distillate, but the valeraldehyde was found to exist also in the oil itself.

In connection with the above, Sch. & Co. give some very interesting facts regarding the essential oils of other species of eucalyptus. We quote their own words:

"We owe the information to a countryman of ours, Mr. C. Th. Staiger, chemist in Brisbane, who distilled these oils himself, partly by request of the committee charged with the [Intercolonial] exhibition. This is so much the more gratifying as it has heretofore been impossible for us to procure samples of these oils from our agent, although the latter was surely in a position to comply with our request. It was even impossible for us to procure samples of the oils exhibited at the Colonial Exhibition."

[Incidentally we would state, though this information is not even implied by Messrs. Schimmel & Co., that private communications we have received from trusted correspondents in Australia assure us that very considerable quantities of the remarkable oil presently to be described have annually been produced in Australia by a few manufacturers. But none of these products seems ever to have reached the market, and it remains a mystery what has become of them. When the extensive reports on eucalyptus were published at about the time of the Philadelphia Exhibition in 1876, and after Prof. F. v. Mueller's large work on eucalyptus had been completed, orders for some of these oils, notably for that of *Eucalyptus citriodora*, were sent to Australia, but none could be procured. If it *was* made in quantities, and did *not* appear on the market, the question arises where did it go to; who used it; and as what did it make its appearance?]

"These oils far surpass all our expectations, and we are confident that we shall soon be able to introduce them upon the market.

"For the present, we possess only small samples which are already several years old and partly resinified. The following data are therefore only preliminary:

1. Oil of *Eucalyptus Bayleyana* (strongly resinified), spec. grav. 0.940, boils between 160°–185° C.

2. Oil of *Eucalyptus microcorys* (strongly resinified), spec. grav. 0.935, boils between 160°–200° C.

Both of these resemble oil of *E. globulus*. Like the latter, they contain a terpene ($C_{10}H_{16}$) and eucalyptol ($C_{10}H_{18}O$), but of the latter much less than the "globulus" oil, viz., only about 30%.

3. Oil of *Eucalyptus Dealbata*, spec. grav. 0.885, boils at 206°–216° C.

4. Oil of *Eucalyptus maculata*, spec. grav. 0.900, boils at 210°–220° C.

5. Oil of *Eucalyptus maculata*, var. *citriodora*, spec. grav. 0.905, boils at 209°–220 C.°

The latter three sorts resemble each other very much. They possess a highly agreeable odor, resembling melissa, which is particulary prominent in the oil of *E. dealbata*. These oils will, no doubt, prove very valuable and of practical utility. Chemically, they are quite characteristic. None of them contains any terpene, but they consist of a ketone, $C_{10}H_{16}O$, which is the bearer of the melissa-like odor, and besides a substance $C_{10}H_{18}O$ (?) which is probably an alcohol, and has a fine odor recalling that of geranium.

6. Oil of *Eucalyptus Staigeriana*, spec. grav. 0.880, boils at 170°–230° C.

7. Oil of *Backhausia citriodora*, spec. grav. 0.900, boils at 223°–233° C.

Both of these oils are distinguished by their intense lemon- and verbena-like odor, particularly the last named, which is derived from a tree belonging to the same family as Eucalyptus.

8. Oil of *Eucalyptus Hæmastoma*, spec. grav. 0.890, boils at 170°–250° C. This differs in odor from all the rest, and recalls that of oil of cumin. It contains terpene and cymol. Among its oxygenated constituents is one having the odor of *oil of pepermint*, possibly menthon.

"Regarding the oil of *E. amygdalina*, we would state that this differs from all other eucalyptus oils, and probably contains no oxygenated constituents at all. At least 90 per cent of it consists of a well characterized terpene ($C_{10}H_{16}$), and there may possibly be present a minute quantity of cymol. The spec. grav. of the oil is 0.890; it boils at 170°–180°, and it is dextrogyre, the deviation observed in three samples (in a hundred mm. tube) being, respectively, −27°, −28.4°, −28.6°. The latter property alone, therefore, distinguishes it from the oil of E. globulus."

"*Formosa-wood oil*" is offered by houses in Southern France as a substitute for the expensive oil of orris. Now, there is, in the first place, no such thing known anywhere as "Formosa-wood," and besides, the oil, as sold, consists of oil of copaiba distilled from orris root. It also contains a very little oil of bitter almonds, and some 2 per cent of fixed oil.

Oil of Geranium, Turkish, or Oil of Palmarosa.—This oil, which is entirely different from the oil of geranium distilled in Africa and Spain, is produced in the northern provinces of India, and (while formerly carried to Europe by way of Turkey) is now imported direct. Sometimes it is found adulterated with oil of gurjun balsam or oil of cedar.

The ordinary East Indian oil of geranium, known as *Oil of Gingergrass*, is rarely found even in tolerably fair quality, being *always* adulterated with oil of turpentine, so that no dealer or importer is able to guarantee its quality. Whether the adulteration is practised at the place of distribution or after its arrival at Bombay has so far not been ascertained, but this will eventually be done.

Helenin, or alant-camphor, elecampane camphor, has been reported by Dr. Dono to be an efficient remedy in chorea. He used it successfully in three cases, in doses of ½ grain three to four times daily. It has also been used with advantage in bronchitis and convulsive cough. The substance is in fine, brilliantly white, needle-shaped crystals, and must be carefully protected against heat, as it readily melts.

Heliotropin.—The users of this very useful perfume are warned that it will not stand heat without injury. It should be kept in a cool place. The best plan, however, is to dissolve the substance immediately upon receipt in (deodorized) alcohol and to keep the solution in a cold place.

The crystallized heliotropin, when exposed to heat and light, is apt to cake together and to gradually darken in color. When it assumes a brownish tint, decomposition has so far advanced that the substance is practically useless.

Oil of Jaborandi.—The leaves of the officinal jaborandi yielded 0.4 per cent of an essential oil of very strong odor, and a mild, fruity taste. Spec. grav. 0.875.

Oil of Japanese "Birch Tar."—This is the provisional name applied to a tarry oil obtained from Japan, also known as *matsu oil*, which may possibly be found applicable to medicinal purposes. It has the spec. grav. 0.875 and contains 4 per cent of phenols of an agreeable, guaiacol odor. That portion of the oil which is insoluble in alkalies burns nearly all below 180°. Only about 10 per cent pass over at a temperature beyond 200° C.

The German oil of birch tar has the spec. grav. 0.965, and contains nearly 40 per cent of phenols.

Oil of Kesso Root.—The Japanese "Valerian" root, derived from *Patrina scabiosæfolia* Link, yielded, on distillation, as much as 7 per cent of oil. It much resembles that distilled from European valerian root.

Oil of Kiku.—This oil, obtained from a Japanese plant, was mentioned in the report of Sch. & Co. of last year, but the source was not given. We stated at the time [AMER. DRUGG., 1887, 129] that we had searched the large Japanese botanical encyclopædia "Sô-moku-zussetts," and thought it referred to *Pyrethrum chinense* Sabin. Mr. J. Murai, of Tokio, has now informed Sch. & Co. that the oil is prepared, in the western part of Japan, from *Pyrethrum indicum* Cass.

Oil of Lemon.—One of the most prominent producers of the oil [in Sicily] has long been engaged in the perfection of

machinery for extracting the oil, so as to do away with manual labor. Sch. & Co. state that they have had opportunity to examine the plans, and they believe that success is near at hand. This would render the chance of an adulteration of the oil—which is now carried on by the growers in the most barefaced manner—impossible.

[As it is manifestly impracticable, under present circumstances, to transport the whole crop of fruits grown over the large territory where citrus trees are grown to manufacturing centers, because there are not enough hands concentrated there to work up the immense crop by hand, it is customary to extract the oil—if the écuelle process is used—at or near the place of growth, wherever there is a large enough crop and a sufficient number of people to handle it. Many of these localities are, of course, without proper control or supervision, and, for this reason, a good deal of sophistication is practised to increase the yield improperly. Should the experiment of introducing machinery for extracting the oil succeed, a few manufacturing centres could easily work up the fruit gathered over large areas and shipped to the factory. But we foresee the troubles which this is likely to raise among the population, especially in the country districts. The common people are poor, and their chances or seasons of earning a livelihood are limited. As soon as the opportunity of employment at their old occcupation, and the chance of the small producer to manipulate his own product is taken away, there is likely to be raised an outcry against the "grasping monopolists." It is well to think of this now, so that means may be discovered, if possible, to make up to the people the apparent loss which they will experience in their accustomed employment.]

Oil of Lemon-grass.—The shipments of this oil from Cochin-China by direct steamer are of rare occurrence, as the steamers usually refuse to carry liquid and strongly odorous substances. [In this connection, we can only express our surprise that the method of shipping such products in tin cans or other suitable metallic receptacles has not long ago been more generally introduced. Sch. & Co. have lately begun to import oil of citronella in 40-lb. tin cans. It will not be difficult to do this also in the case of patchouli, oil of lemon-grass, and similar other products which are strongly odorous. The chief difficulty to be overcome will be the apparent expense in carrying to the place of export the empty tins. But in some cases this may be offset by exporting *alcohol* in such tins; in other cases, the tin cans may be shipped unmade, packed in boxes as plates ready for soldering.]

Oil of Matico.—Owing to the scarcity of matico leaves rich in oil, this product has become expensive. [Those who use matico leaves for pharmaceutical purposes will do well to carefully examine the leaves offered to them for purchase.]

Menthol.—A combination of iodol with menthol is being recommended under the name *menthiodol*, against neuralgia. It is prepared as follows: 4 parts of menthol are cautiously melted in a porcelain capsule, and 1 part of finely powdered iodol added, under constant stirring, until a homogeneous mass is produced, which is cast into cones. Should they turn out too hard, a little camphor may be incorporated with them.

Oil of Mirbane.—This substitute for oil of bitter almonds is sometimes used for perfuming the denaturalized alcohol which has been legalized in Germany (where the denaturalization is effected by means of certain pyridine bases) or in England (where the same object is accomplished by wood spirit). It seems again necessarry to point out that this substance is *poisonous*. Even a prolonged inhalation of the vapors of oil of mirbane is apt to be followed by vomiting and diarrhœa, and 5 to 6 Gm. may produce a fatal result.

Oil of Musk-Seed.—This oil (from *Abelmoschus moschatus* L.), only recently introduced, promises to become an article of great importance. It is not improbable that the bearer of the odor contained in the oil may turn out identical with that existing in musk itself. The genuine oil of musk-seed has the spec. grav. 0.900 at 25° C. It congeals when cooled to + 10° C. (50° F.), and then remains solid at the average indoor temperature.

Oil of Orris.—The reason why some manufacturers of oil of orris offer this product at lower prices than others is this, that they first treat the orris root with sulphuric acid, whereby the starch is converted into glucose, etc. On distilling the altered root, a larger quantity of product is obtained, but this is of inferior quality.

Oil of Patchouli.—The quality of patchouli leaves shipped from the East is not always satisfactory, as they are frequently mixed with stems and already exhausted leaves. The leaves of *Urena lobata* var. *sinuata* have also been used as an adulterant. On the other hand, those of *Pogostemon suavis* Tenore, and *Plectranthus Patchouli* Clarke, are said to have the same odor. During last year, a single house at Penang shipped not less than 30,000 oz. of oil of patchouli to Europe, and a portion of this lies still unsold at London and Paris.

Oil of Peppermint.—The Japanese product continues to keep the whole peppermint market in a most depressed condition. Sch. & Co. feel certain that a catastrophe will take place sooner or later, as the market is unable to absorb the produced quantity. According to the reports of the German Consul at Yokohama, the annual production of the oil (two harvests per year) amounts to 400,000 pounds. Even supposing that only half of this amount is produced, and that one-half of the product is consumed in the country itself, there would still remain 100,000 pounds for export, an amount about equal to the total annual production in the United States.

Oil of Pine-Needles.—The kind most in request is the oil distilled from the needles of *Pinus Pumilio*. Some continental manufacturers of "forest odors" combine this or similar oils with too much of other substances, such as musk, which diminish its refreshing qualities. The ozonizing effect of these pine-oils is best produced either by spraying them through the sick-room, or by burning them in appropriately constructed lamps (such as Jaeger's ozone lamp). It is not necessary to burn, for such purpose, the most expensive of the pine-oils; a cheap and very serviceable combination consists of equal parts of the best quality of oil of Pinus sylvestris and oil of Larix sibirica. The latter is known in the trade as "Siberian pine-needle oil."

Oil of Sandal Wood.—The Brit. Pharmacopœia gives the specific gravity of oil of sandal wood as 0.960, and that of the United States as 0.945. Both figures are wrong. Schimmel & Co. find that it should be 0.970 to 0.975 at 15° C. The oil distilled in India shows a specific gravity up to 0.990, but this should not be regarded as normal, as the oil is distilled in a crude manner over a naked fire. Application of steam and improved rational apparatus has never produced an oil with a specific gravity higher than 0.980.

Oil of Wintergreen.—A report has been circulated some time ago that oil of wintergreen is largely adulterated with oil of camphor. Special inquiries made by the manager of the New York branch of Schimmel & Co. have shown that this statement lacks foundation.

Oil of Wistaria.—A product sold in the American market is stated by Schimmel & Co. to consist of balsam of copaiba, Turkish oil of geranium, balsam of Peru, and a little oil of ylang. It is probably supposed that the oil is believed to be obtained from the bark of *Wistaria Sinensis* Curt. Genuine wistaria oil, when warmed with potassa, is stated to be converted into a white substance having the odor of cumarin. The American "oil of wistaria" failed to respond to this test.

Testing Sulphate of Quinine.

In the judgment of Messrs. C. F. Boehringer & Sons, the recent discussions on the respective merits of the different tests proposed to ascertain the purity of commercial sulphate of quinine, have shown that none of them can equal, in accuracy or sharpness, the oxalate test, if conducted in the following manner:

Put 1 Gm. of commercial sulphate of quinine (or 0.85 Gm. of the completely dried sulphate) into a small tared flask, and dissolve it by means of 35 C.c. of distilled water at a boiling temperature. Next add a solution of 0.3 Gm. of neutral crystallized oxalate of potassium in 5 C.c. of distilled water, and then add enough water to make the contents of the flask weigh 41.3 Gm. Transfer the flask to a water-bath kept at a temperature of 20° C. (68° F.), shake it occasionally, filter after half an hour through glass-wool, and to 10 C.c. of the filtrate add 1 drop of solution of soda (sp. gr. 1.160). No turbidity should occur in the course of a few minutes, if the sulphate was pure.

Chinese Ginger.—Up to the present time, China has exported ginger only in a candied form. Recently, however, a company has been formed there which dries fresh ginger by special apparatus, and thereby renders it capable of being exported. It is said that the fresh roots are deprived of about 90 per cent of their weight by the removal of water and of starch, and that the remaining 10 parts constitute the valuable aromatic portion. The process reduces the root to powder. A sample of this powder was submitted to Schimmel & Co., of Leipzig, who acknowledged that it had a finer aroma than any other kind of ginger they had ever met with. As to regular future supplies of the article and its price, nothing certain is known as yet.

Preservation of Organic Liquids.—For the purpose of preserving milk for some time, so as to keep it in good condition for analysis, E. Schroder recommends to add to it a drop (or more, according to the quantity) of essential oil of mustard. This will not interfere with the course of the analysis. It will no doubt answer equally well in the case of other organic liquids.

The New Austrian Pharmacopœia will appear in December next. The pharmacognosy section is said to be compiled by Professor Vogl; the chemical section, from A to K, by Professor Ludwig, and from K. to Z, by Professor Barth; while Mr. M. R. Schneider will edit the whole. The authors are very reluctant to give any details about the progress of the work.

THE

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EDITORIALS.

A CASE of suicidal poisoning recently occurred in this city which brings up the question of the utility of the present law regulating the sale of poisons. A man having a reputation for inebriety engaged a room at a hotel, wrote to his wife a parting message, and sent a hall-boy to the nearest drug store with a dollar and with instruction to bring him some laudanum and lint to be applied to an injured arm. He got the laudanum, and was, some time after, found dead.

Another poisoning case, also of recent occurrence, bears upon the same question. A servant in a boarding-house was sent to a druggist with an empty Hunyadi-water bottle and instructions to get a bottle of water like it. What he asked for, however, was "bug poison," and it seems that the druggist filled his bottle with a mixture of corrosive sublimate, carbolic acid, and similarly noxious agents, and labelled the bottle very thoroughly as a container of poison. The lady, who had sent for the water, did not look at the labels, but swallowed a quantity of the contents of the bottle and suffered pretty serious results, as might be expected.

These two instances illustrate very well the majority of the cases of poisoning which occur. In one case the poisoning is done with deliberate intent; in the other, it is the result of pure stupidity. In neither case does the existence of a law regulating the sale of poisons by druggists seem to have had any utility, and so far as can be judged from the experience of the few years that have passed since its enactment, the public would be just as well if such a law did not exist, for pharmacists generally do not comply with it, and there is no one who takes sufficient interest in the subject to secure its enforcement. There is ground for a belief that there would really be less risk of accidental poisoning if there were fewer legislative restrictions and fewer distinctive poison bottles; if each person appreciated that he must exercise precaution in taking the contents of *any* bottle, and if the responsibility of misadventure rests upon himself and not upon the druggist. The utter inability of the druggist to prevent misuse of poisons is well shown in the second case mentioned above, and also in a recent case in Canada, in which two rogues attempted to blackmail a druggist by putting a poisonous mixture into a bottle in place of a harmless one, which he *had* dispensed on prescription, and claiming that carelessness on his part had caused harm. The poison in this instance was got from another druggist with a fraudulent prescription, and the contents of the bottles were changed.

There is a growing tendency to model the restrictive laws of this country after those which exist in Europe without sufficient regard for the fact that the system of government, and the machinery by means of which the laws are administered, are quite different, and laws which may accomplish their purpose there, because it is somebody's business to see that they are enforced, are of no practical value here, because it becomes everybody's business to attend to their enforcement. So far as suppression of accidental or intentional poisoning is concerned, however, there appears to be quite as much, if not more, trouble abroad than there is here, and we repeat that we are inclined to think that there would be less of it here, if the present poison laws were abolished.

IN a recent report on the composition of "Coleman's Liebig's Extract of Meat and Malt Wine," published in the *Zeitschrift f. angewandte Chemie* (1888, 136), Mr. Heinrich Trillich justly condemns the unprincipled use which is being made of the name of the illustrious Liebig, in order to prop up all sorts of trashy preparations in the estimation of the public. There are "Liebig's Beef Wine," "Liebig's Canadian Extract of Beef," "Liebig's Perfect Health Sweets," "Liebig's Perfect Health Lozenges," "Liebig's Extract of Malt," etc., etc.—the series might be greatly extended—all of which appear under false pretenses. Liebig authorized the use of his name only in connection with a very few products, the most important of which is the Extract of Beef manufactured at Fray Bentos, Uruguay.

It is a pity that such an abuse should be made of the name of a man who will always stand in the front rank of the pioneers of modern chemistry, though he has long departed from our midst. But—*vulgus vult decipi: ergo decipiatur.*

THE following advice, published in *Science* for Nov. 14th, 1884, ought to be regularly printed in every volume of transactions of a scientific body:

"We venture to make a few suggestions which seem to us worth considering by those who are called upon to manage scientific meetings, especially the annual gatherings which bring from a great distance, at a great expense, those who are desirous of securing the utmost advantage from the meeting. *First*, Let the committee in charge make arrangements of a positive character for the conduct of the meeting, and require conformity to their regulations. Among these rules should be, (1) a strict adherence to the allotted time; (2) the presentation, in advance, of an abstract of what is to be read, and this should be printed, particularly if it contains any tabular statement, mathematical formulas, chemical formulas, or other rigidly technical statements; (3) the allowance of a definite time for discussion, questions, answers, and comments. *Second*, Let every speaker or reader form the habit of stating, in general terms, the purpose of his investigation, its relations to other work, and its results, refraining from going into minute details unless he is sure that a considerable part of the audience can follow him. Let him always remember that there are some statements which the mind cannot readily receive through the portal of the ear; and there are but few which cannot be simultaneously presented, both to the eye and the ear. The diagram, the printed formula, the abstract may cost the speaker a little expenditure; but it will save the hearer a vexatious outlay of time and attention. *Third*, Let there be a liberal margin allowed for social intercourse outside of the meetings, not merely for public receptions and excursions, but for those informal introductions and interviews which to many persons are the best part of scientific gatherings. We should not then hear it said so often: 'This would have been a very pleasant meeting, were it not for the papers which were read.'"

Memorial of the Late Henry B. Parsons.

THE Alumni Association of the School of Pharmacy of the University of Michigan have issued the following circular:

The committee desire to state that they have met with nothing but encouragement. All the alumni express a decided interest in the object and a wish to further it.

The record of H. B. Parsons has reflected honor upon his alma mater. In this record we all feel a just pride, and it is fitting that his fellow-alumni and friends should perpetuate his memory by a memorial suitable and lasting.

As the committee must be guided in the selection of a memorial by the amount raised, and as the time is now limited for the selection and completion of the work, the committee would respectfully solicit your subscription to the above and would ask that, if possible within two weeks from the receipt of this, you send your subscription to A. B. Stevens, 15 Church st., Ann Arbor.

Respectfully your Committee,

A. S. PARKER.
OTTO SCHERER.
A. B. STEVENS.

Gustavus Johannes Luhn, of Charlesto n, S. C., died on the 4th of April, after an illness of but a few days' duration. He was a native of Genthin, province of Saxony, where he was born on the 7th of June, 1839. After having been educated in Berlin, he came, at the age of 18 years,

to this country. He already had some knowledge of the drug business, and continued the study of pharmacy after his immigration; residing successively in New York, Baltimore, and Richmond. In 1868, he commenced business on his own account in Charleston, and rapidly acquired a position as the leading pharmacist of the city, and a business which had few equals in the Southern States. He was the organizer and first president of the South Carolina Pharmaceutical Association, and for some time was a member of the Board for Examining Applicants for Apothecary's License. In 1876, he was elected first vice-president, and in 1878, president of the American Pharmaceutical Association. Mr. Luhn was well known in all his relations as a man of great business ability and strict integrity, and his death will be a severe loss to the community in which he lived. A bibliographical sketch and portrait of Mr. Luhn, were published in this journal (NEW REMEDIES), in 1879, p. 15.

Daniel C. Robbins, of the well-known New York firm of McKesson & Robbins, died suddenly in Brooklyn on the 15th of April. He left his house in the afternoon for a walk and seemed in as good health as usual. As he turned a street corner, he was noticed by some firemen to stagger and grasp an awning post for support. They carried him at once to their engine-house, which was close at hand, and summoned an ambulance surgeon, but he became unconscious and soon died.

Mr. Robbins was in his seventy-third year. He was born in Roslyn, L. I., and at the age of thirteen left home to engage in business. He served his apprenticeship with a druggist in Poughkeepsie and then came to this city, where he became chief clerk for the firm of Olcott & McKesson, of Maiden lane, more than fifty years ago. He soon rose to be partner in the firm, which later became McKesson & Robbins. For many years they have carried on business in Fulton street, and have been one of the leaders of the drug trade of the country. Mr. Robbins was also president of the New York Quinine and Chemical Works at No. 114 William street. He was for many years a member of the Chamber of Commerce, and served on important committees. He was a member of the New York Historical Society and the Mercantile Library, and of the principal Brooklyn charities.

Joseph T. Brown, the oldest druggist of Boston, Mass., died at his residence in Jamaica Plains, on the 23d of April, at the age of 78 years. He was born in Little Compton, R. I., and learned business in Boston with one of his three brothers, all of whom were druggists. He was greatly esteemed in his community and was connected with many societies and public organizations. He was eminently successful both as a business man and as a member of society.

Jules Emile Planchon, the French botanist, died in Paris, on the third of April, at the age of sixty-five years.

Alumni Association of the College of Pharmacy of the City of New York.—The officers elect are: President, Charles F. Heebner; First Vice-President, William Wright, Jr.; Second Vice-President, John Pfeiffer; Third Vice-President, George C. Dickman; Treasurer, Domingo Peraza; Secretary, G. A. Palmer; Registrar, L. M. Royce; Executive Board for three years, C. O. Douden and C. W. Brunner; Delegates to the Annual Meeting of the American Pharmaceutical Association to be held at Davenport, Iowa, H. U. Brunlich, John Pfeiffer, P. W. Bedford, Thomas T. Main, and Arthur F. May.

St. Louis College of Pharmacy.—The twenty-third annual meeting of this college resulted in the election of the following officers: President, F. W. Sennewald; Vice-President, Louis Schurk; Recording Secretary, G. H. Chas. Klie; Corresponding Secretary, Chas. Gietner; Treasurer, Solomon Boehm. The Board of Trustees stands as follows: H. E. Hoelke, J. E. Koch, H. Frielingsdorf, C. F. G. Meyer, Geo. Ude, and Dr. H. E. Ahlbrandt. Mr. Ude was elected Chairman.

The Alumni Association of the Louisville (Ky.) College of Pharmacy had its annual meeting and banquet on the evening of March 11th. The officers of the Association are: Oscar Dilly, President; Peter Schlosser, First Vice-President; Robt. J. Frick, Second Vice-President; Edw. Constantine, Recording Secretary, Frank Keifer, Corresponding Secretary; Phil. Heuser, Treasurer; Executive Board, Dr. B. Buckel, Ottc E. Mueller, Otto Hausgen, Adolph Schackner.

Philadelphia College of Pharmacy.—At the sixty-seventh commencement of this college, held March 20th, 1888, the Honorary Degree of "Master in Pharmacy" was conferred upon the following gentlemen: Professor Joseph P. Remington, William J. Jenks, and Thomas S. Wiegand.

As showing the increasing national reputation of the Philadelphia College of Pharmacy, it may be interesting to note, that of the one hundred and thirty-seven graduates who took their degreas on March 20th, 1888, one-half were from States widely separated from each other: California and Texas, Iowa and Massachusetts, South Carolina and New York, Wisconsin and Georgia; in all twenty-four States were represented.

The Estimation of Corrosive Sublimate in Dressings.

DR. KASSNER reports that the methods recently recommended for estimating the quantity of corrosive sublimate in dressings and other substances is liable to error, particularly when glycerin forms one of the other constituents. If the method of estimation is based upon a reduction of the mercuric chloride to mercurous by the use of a ferrous salt, and the rate of reduction afterwards determined by an oxidizing agent (permanganate or bichromate), the presence of glycerin will naturally render the result altogether erroneous.

The author conceived the idea that, by adding a known quantity of potassa to the mercuric chloride, he could precipitate the whole of the mercury as mercuric oxide (HgO), and subsequently determine the amount of undecomposed potassa by titration. On trying this method in practice, however, he always obtained short results, no doubt owing to the fact that some of the mercuric chloride escaped the action of the potassa, by the formation of an oxychloride of mercury. It then occurred to him to employ an *alcoholic* solution of potassa, and this was found to work satifactorily.

A solution of 0.5 Gm. of corrosive sublimate in water was added to exactly 20 C.c. of ½ normal potassa solution, together with about 40 C.c. of water and 30 C.c. of 96-per-cent alcohol. The whole was then filled up to 100 C.c. with alcohol. The solution was filtered, and the filtrate titrated with a ½ normal acid. It was thus found that 0.5 Gm. of mercuric chloride had consumed 14.8 C.c. of ½ normal potassa solution, which corresponds to 100.18 per cent.

On repeating this process of assay in the presence of glycerin, practically the same results were obtained.

The best indicator to use in the above reaction is methyl-orange. This is neither affected by the presence of carbonic acid, nor by mercuric chloride. Besides, it would at once indicate the presence of an acid reaction in the mercuric chloride solution before the addition of the potassa, in which case, the acid would have to be previously neutralized.—After *Pharm. Post*, No. 11.

Anhydrous Chloride of Magnesium.

THE preparation of anhydrous chloride of magnesium has heretofore been connected with great technical difficulties. It is well known that this salt is one of the most hygroscopic substances known, and parts with its absorbed water only with the utmost difficulty. The usual method by which it was obtained anhydrous was to add chloride of ammonium to its aqueous solution, whereby a double chloride of magnesium and ammonium is formed, which, on heating, first loses water and, at a temperature of about 400°C., gives off chloride of ammonium, leaving anhydrous chloride of magnesium behind. Walther Hempel has found that, by passing a current of hydrochloric acid gas through a dense aqueous solution of chloride of magnesium, the whole of the water may be removed. On a small scale, this may be done by placing the salt in a crucible, with perforated cover, through which the current of acid gas is passed, while the crucible is heated.—After *Ber. D. Ch. G.*, 1888, 897.

Incompatibility of Antipyrin and Carbolic Acid.

WHEN aqueous solution of antipyrin and of carbolic acid are brought together in certain proportions, a cloudiness is produced, which, in more concentrated solutions, increases to the formation of a precipitate in form of an oily layer, consisting probably of 2 molecules of phenol and 1 molecule of antipyrin. Dr. G. Vulpius, who examined this reaction, found that a 2-per-cent solution of phenol is not rendered turbid even by twice its volume of a 1-per-cent solution of antipyrin, but by more concentrated solutions of the latter.

In practice, it is not advisable to employ carbolic acid for the purpose of sterilizing antipyrin solutions, as the addition of an amount of the former sufficient to produce sterilization would certainly cause turbidity or a precipitate.—*Pharm. Post*, No. 8.

Boric Acid as an Internal Remedy.

BORIC acid has heretofore been regarded by many authorities as a noxious agent when administered internally, some of them having reported that it gradually produces sterility, others that it injuriously affects the red corpuscles of the blood, etc.

Dr. Gaucher has recently reported to the Paris Medical Society of Hospitals the results of his experiments on rabbits, to whom he gave daily doses of 0.5 Gm. (about 8 grains) of boric acid. This did not prove toxic until after the lapse of 11 or 12 days. Accordingly, a toxic dose for man would be represented by about 75 Gm. (or about 2½ oz.) in twenty-four hours.

Encouraged by these experiences, Dr. Gaucher tried the effects of boric acid upon consumptives, in doses of 0.5 to 1 Gm. (8 to 16 grains) per day given per os. After a few days' treatment, the fetid odor of the discharges disappeared, and in two cases, the general condition of the patient improved. Not the least gastric disturbance was observed.—*Rep. de Pharm.*, No. 3.

FORMULAS AND ITEMS.

Ayer's Hair Vigor.—According to the *Pharmac. Zeitung* (No. 65), Ayer's Hair Vigor consists of a 3-per-cent solution of acetate of lead in water, containing a little glycerin and some sulphur.

Hair-Dye Pomades.—Haskovec recommends as *basis* for hair-dye pomades the following:

Lanolin	100 parts.
Lard	20 "
Oil of Rose Geranium, etc.	q. s.

And as dyeing agents for gray hairs which had originally been chestnut-brown:

Nitrate of Bismuth	5 parts.
Citric Acid	3 "
Glycerin	20 "

For gray hairs which had originally been black the following is recommended:

Extract of Walnut Shells	2 parts.
Pyrogallic Acid	3 "
Water	enough to dissolve.

—After *Casop. cesk. lék.*

Catarrh Cures.—*New Idea* says that the following formulas substantially represent the articles named:

Sage's Catarrh Cure.—Powdered Hydrastis, 1 oz.; Common Salt and Borax, of each 10 gr.

Ely's Cream Balm.—Carbonate of Bismuth, 15 grains; Thymol, 3 grains; Oil of Wintergreen, 3 minims; Vaseline, 1 oz.

Remedy for Coryza.—Dr. Fritsche recommends, as a remedy for coryza, to take 4 grains of salicylic acid five or six times daily, in intervals of two or three hours, and to use the following mixture for smelling:

Glacial Acetic Acid	2 parts.
Carbolic Acid	2 "
Oleobalsamic Mixture	8 "
Tincture of Musk	1 part.

A sufficient quantity of this mixture is poured upon cotton contained in a small, wide-mouthed bottle, and each nostril alternately applied to it at first every half-hour, afterwards in longer intervals, for about ten minutes each time, the vapor being inhaled. An improvement is said to occur already after a few hours, but the treatment may have to be continued for several days.—After *Berl. Klin. Wochenschr.*

Strychnine is said by T. Lauder Brunton to be a very efficient remedy for relief of sleeplessness in those who suffer from over-work or fatigue. It may be used in the form of tincture of nux vomica or granules [or tablet triturates] containing strychnine, moderate doses only being needed.

Formulas for Chapped Hands.—One which is said by the *Western Druggist* to be superior to many of the advertised articles consists of: Quince Seed, 2 oz.; Rose Water, 16 fl. oz.; Glycerin, 32 fl. oz.; Tincture of Benzoin, 2 fl. oz. Macerate the Seeds in the Rose Water twenty-four hours, strain, and add the Glycerin and Benzoin.

The following is also said to be satisfactory: Balsam of Peru, 1 dr.; Purified Wool-Fat, 1 oz.; Perfume to suit.

Lyon's Kathairon for the Hair.—Castor Oil, 1 fl. oz.; Tincture of Cantharides, 1 fl. dr.; Oil of Bergamot, 20 minims; Stronger Water of Ammonia, 1 drop; Alcohol, sufficient to make 3 fl. oz.—*New Idea.*

Van Buskirk's Fragrant Sozodont.—Alcohol, 1 fl. oz.; Water, 1¼ fl. oz.; Soap, 129 grains; Oil of Wintergreen, 2 minims; Red Saunders, q. s. Dissolve the Soap in the mixture of Alcohol and Water, add the color and perfume, and then add enough Water to make 3 fl. oz.—*New Idea.*

Van Stan's Stratena.—Acetic Acid, 4 oz.; White Glue, 3 oz.; French Gelatin, 4 dr.; Shellac Varnish, 4 fl. dr.; Distilled Water, 4 fl. oz. Dissolve the Glue in the Acid with heat, and the Gelatin in water with heat. Mix the two solutions gradually until homogeneous, then add the Varnish, and put into bottles.

A Fraudulent Formula.—According to the *Chemist and Druggist*, several British chemists have been confronted by the following "Genuine Hop Compound for Bitters," advertised in the *Christian World* and elsewhere by S. Gould, a M.R.C.S., Eng., of Bradford: Hops, Assar Bark, Codru Bark, Kradna Root, Rolique Root, Noil Root, Rock Root, Tacher, 4 pieces of Lump Sugar. Upon examination, Gould's packets were found to be Hops, Burdock, Mandrake, Licorice, Dandelion, Dock, and Wild Cherry. The ingenious suggestion that the words were transposed, *e. g.*, rolique root = liquore root, noil root = (dande) lion root, and so on, seems plausible.

Condurango is esteemed by Prof. Franz Riegel, of Giesen, as superior to other stomachics, the best form for administration being a wine.

Chewing Gum.—A western contemporary says that pure balsam Tolu and white sugar are the basis of the best chewing gums in the market. With which opinion we differ. Spruce gum is, above all things, the best chewing gum, but the majority of the chewing gums now sold have Balata gum (otherwise known as gum chicle) as their basis.

Arsenic for Warts.—Dr. B. S. Pullin reports, in the *Bristol* (Eng.) *Medico-chirurgical Journal*, several cases in which doses of 1 to 3 minims, twice daily, of liquor arsenicalis, Ph. Br., rapidly cured an outbreak of warty growths upon the hands.

Antiseptic Gargle.—The following solution is recommended for sterilizing the mouth after the teeth have been cleaned with a tooth-brush and soap.

Thymol	3½ grains
Benzoic Acid	45 "
Tincture of Eucalyptus	180 "
Water	11,250 "

M.

Asclepias syrica (milkweed) is highly recommended by Dr. B. F. Reynolds, of Smithville, Mo., as an efficient remedy for lumbago. A decoction of roots, gathered between August and April, should be used in doses of half a teacupful four or five times daily.—*Med. and Surg. Rep.*, March 31st, 1888.

Improving Cider by Freezing.—When cider is cooled to −18° to −20° C. (−4° F.) a portion of the liquid soon solidifies and the temperature rises to −3° to −4° C. (26–24° F.). The portion still liquid has a higher specific gravity than the original cider. The solidified portion melts to an almost colorless liquid, having a sp. gr. 1.0 and containing only 0.3 per cent of alcohol. Cider containing 4–5 per cent of alcohol yields on freezing a concentrated cider containing 7–8 per cent of alcohol and 60–80 Gm. dry extract per liter; this composition corresponds to that of the richest Normandy cider. Both the taste and aroma of the cider are obtained in a concentrated form by freezing it. The fermentation is slowed, but not stopped ever after 212 hours.—*Compt. R.* and *Journ. Soc. Ch. Ind.*

A Domestic Remedy for Ivy-Poisoning.—Duffield writes to the *Scientific American* of March 24th, 1888, as follows:

For many years I suffered terribly from this cause, but, remembering that all poisons are acids, and that alkalies neutralize acids, I bathed the poisoned member in a strong lye made from wood-ashes, and obtained instant relief. Subsequently, I found that the dry ashes alone, rubbed over the poisoned member, were equally effective. Since this discovery, I have had no further trouble, and, having tried this simple remedy repeatedly on myself and on many others with like good results, I am now thoroughly convinced that wood-ashes will, in every case, prove a sure and sovereign specific for all cases of ivy-poison. [*Note by Ed. Am. Dr.*—The same object may be attained equally well, and in a much cleaner manner, by applying bicarbonate of sodium in powder.]

Gelatin Plaster Casts for Anatomical Specimens.—Some time ago, Mr. C. W. Cathcart, M.B. (Edinburgh Infirmary) proposed a new basis for making casts of anatomical specimens. The basis is made as follows: Take of "No. 1" gelatin, say six ounces, soak it till quite soft and swelled, afterward dry it slowly until just pliable. As it has now the minimum of water necessary, melt it in a water-bath and add six ounces (measure) of clear glycerin. When the two are thoroughly mixed, the material is ready. To render it opaque, add, while it is still hot, and therefore fluid, small quantities of a thick paint made by rubbing up oxide of zinc in glycerin. When a skin color is wanted, a little vermilion is required to give a warm, life-like hue. Should other things be cast, the prevailing color can be given with water color, as required (tubes of moist water color sold at two pence each will be found convenient). Several pounds of this mixture may be made at once, and portions used as required.—*Scientific American*, March 3d, 1888.

Opium in Tonquin.—*L'Economiste Français* says that some attempts made in Tonquin to cultivate opium last year under the direction of M. Frederick have produced unexpectedly good results, considering that sowing took place three months too late, and that the ground set apart for the experiment was far from favorable. It is now certain that opium of a good quality, or rather the white poppy which produces opium, will succeed capitally at Tonquin. An effort will now be made to organize its culture on an extensive scale.

Dr. Giral's Febrifuge Powder.—Sulphate of Quinine, 15 centigrammes; Arseniate of Sodium, 5 milligrammes; Pulverized Gum Acacia, 2 grammes; Carmine Lake, 5 decigrammes. Divide into 3 powders and take one, every morning, in a cup of tea.

QUERIES & ANSWERS.

Queries for which answers are desired, must be received by the 5th of the month, and must in every case be accompanied by the name and address of the writer, for the information of the editor, but not for publication.

No. 2,134.—**Phosphomolybdic Acid** (Ithaca).

Phosphomolybdic acid, which is used as a reagent for alkaloids, and also certain alkali metals, is prepared from the well-known yellow compound which is formed when phosphoric acid is brought into contact with molybdate of ammonium in a solution containing nitric acid. For this purpose, 1 part of molybdic acid may be dissolved in 4 parts of water of ammonia (or a sufficient quantity to neutralize the acid), and the solution is poured into 15 parts of nitric acid of spec. gr. 1.200. After standing several hours, the solution is passed through purified glass-wool. The filtrate is then mixed with a quantity of phosphoric acid insufficient to decompose the whole reagent. The resulting crystalline precipitate is freed from the mother-water by the filter-pump, then washed with water, and next boiled with nitro-muriatic acid, which decomposes the ammonia group, and produces a solution of the phosphomolybdic acid. This may be obtained in yellow prisms by evaporating the solution. The prisms contain 20 molecules of water. On allowing the solution to evaporate spontaneously, the crystals will contain as much as 50 molecules of water.

No. 2,135.—**Terebene** (M. D.).

Our attention has recently been directed by the correspondent to some *terebene* occuring in the market, which is entirely unfit for medicinal purposes, as it is simply refined oil of turpentine, with its optical properties but little, if at all, altered. This kind of terebene, when administered to patients, produces the same symptoms as common oil of turpentine. It acts as an irritant to the whole intestinal canal, produces bloody urine, etc. Unfortunately, the large majority of pharmacists do not possess the means to test medicinal terebene. The only reliable criterion here is the polariscope. Ordinary oil of turpentine (American) turns the plane of polarized light with sodium flame about 14 degrees to the right. Terebene produced from this, or any other kind of oil of turpentine, is entirely indifferent to polarized light, and should therefore fail to turn its flame either to the right or to the left.

There are, however, notable physical differences between optically active and inactive terebene. The former has a decided turpentine odor, and a most pronounced and sharp turpentine taste. Inactive terebene is much less harsh; in fact both the odor and the taste are blunted off and rendered mild. However, this is not equally realized by everybody, hence a mere examination by smell and taste is not sufficient to ascertain the quality of the substance.

No. 2,136.—**Paraldehyde** (Buffalo).

The compound known as paraldehyde is a peculiar modification of the aldehyde of the ethyl series, produced by the combination of several molecules, that is, by polymerization.

Ordinary ethylic aldehyde is C_2H_4O. When three molecules of this are combined together, the resulting compound —$(C_2H_4O)_3$ or $C_6H_{12}O_3$—is known as paraldehyde.

Paraldehyde is manufactured for medicinal purposes by oxidizing ethylic alcohol. Four parts of alcohol of 80% are mixed with 6 parts of manganese dioxide, 6 parts of sulphuric acid, and 4 parts of water; or 100 parts of alcohol are mixed with 150 parts of potassium bichromate and with 200 parts of sulphuric acid previously diluted with 3 times its volume of water. The mixture is distilled, the distillate warmed to 50° C. (122° F.), the vapors conducted into ether, and the solution saturated with gaseous ammonia. This causes the separation of crystalline aldehyde-ammonia, which is distilled with diluted sulphuric acid. The escaping vapor of aldehyde is conducted through a chloride of calcium tube warmed to about 22° C. (72° F.), and then through a cold condenser. The pure aldehyde thus produced is now polymerized, that is, converted into paraldehyde by adding to it small quantities of chloride of zinc and hydrochloric acid. The mixture becomes heated, and almost the whole of the aldehyde is converted into paraldehyde. The resulting product is now cooled to 0° C. (32° F.), the separated crystals collected, pressed at the same temperature, and distilled. These operations are repeated until the whole of the product distils over at the uniform temperature of 124° C. (255.2° F.).

No. 2,137.—**Detection of Soda in Milk.**

It is not an uncommon occurrence that dealers in milk try to hide an incipient acidulous condition of the fluid by the addition of soda. This is particularly the case in summer time, and is sometimes done to entirely fresh and normal milk, with a view of preventing its turning sour.

Though the quantity of the addition—usually consisting of carbonate or bicarbonate of sodium—is comparatively small, yet it is entirely improper. The presence of soda, when it amounts to not less than 0.1 per cent, or about 1 Gm. per liter (15 grains per quart) may be readily detected by the following process:

Mix 10 C.c. of the milk with 10 C.c. of alcohol, and a few drops of solution of rosolic acid (1 : 100). If the milk is pure it assumes only a brownish yellow color, but if either carbonate or bicarbonate of sodium are present, it will acquire a more or less distinct rose-red tint. When only a small amount of these salts is present (say 0.1 per cent), the color test will be best recognized by comparing the suspected sample with pure milk treated in the same manner. Phenolphthalein is unsuited for this test.

No. 2,138.—**Detection of Antipyrin in Urine** ("Emulsion").

Antipyrin has the property of being volatilized with the vapor of boiling water. This is the case, however, only when it is present in an uncombined state. When antipyrin is taken internally, a portion of it enters into some combination, which is not yet clearly made out, but seems to have a great similarity to certain copulated compounds, having sulphuric acid as one of its members. Phenol and many other substances related to this have the peculiarity of appearing in the urine as compound sulphuric acids ("phenol-sulphuric acid, etc., etc.). Ordinary tests fail to show the presence of phenol in such cases, until after the compound has been split up by hydrochloric acid or some other agent.

When urine, containing a small amount of antipyrin, is distilled, no trace of this body passes over. But it will do so promptly on boiling the urine with hydrochloric acid. If the urine contains a large proportion of antipyrin, however, most of it is present in the *free* state, and may be distilled over with water.

Urine containing free antipyrin, or the distillate obtained after the urine has been treated with hydrochloric acid, is rendered red by ferric chloride, and bluish-green by nitrite of sodium, or by moderately dilute nitrous acid, which latter is best prepared by allowing nitric acid to act upon a little starch, and diluting with water.

No. 2,139.—**Detection of Saccharin in Wines or other Liquids** ("Syrup").

A method recently recommended by C. S. Schmitt is the following:

Render a measured quantity, say 100 C.c. of the liquid, strongly acid by means of a dilute sulphuric acid, and then shake the liquid with three successive portions, of 50 C.c. each, of a mixture composed of equal parts of ether and petroleum ether. As soon as each of these portions has separated, it is at once removed and filtered. A little solution of soda is added to the united filtrates, and the whole then evaporated nearly to dryness. The residue is heated, in a silver or porcelain capsule during half an hour, to 250° C. (482° F.); the fused mass dissolved in water, the solution placed in a separating funnel, supersaturated with sulphuric acid, and the salicylic acid (which had been produced by the previous reaction) extracted with ether. The filtered ethereal solution is evaporated to dryness, the residue dissolved in a little water, and tested with a few drops of solution of ferric chloride. If the liquid contained saccharin, the well-known reddish-violet color, caused by salicylic acid, will make its appearance.

So small a quantity as 0.005 per cent of saccharin could still be detected by this test.

Of course, the liquid should first be tested directly for salicylic acid, and if any of this is present, it should be removed by shaking the acidulated liquid with ether, until it no longer gives any reaction for salicylic acid.

No. 2,140.—**Composition of Cheese** (Avenue).

According to the report of the New York State Dairy Commissioner for 1886, the composition of 79 cheeses prepared in the large factories during 1885 and 1886 was as follows (57 of these bore the State brand, that is, the official certificate of the Commissioner):

	57 Cheeses, With State brand.		22 Cheeses Not branded.
	Lowest. Highest.	Mean.	Mean.
Water, %.....	4.42 40.04	25.93	23.34
Fat, %.....	23.59 52.63	31.55	35.38
Casein, %.....	27.67 55.27	38.12	37.74
Ash, %.....	2.41 7.16	4.38	4.52
		99.98	100.98
Fat in dry mass.....	28.10 55.00	42.59	44.66
Fat contained as Insoluble Fat Acids..	85.90 89.30	87.64	
Fat contained as Soluble Fat Acids....	4.80 6.37	5.32	

No. 2,141.—**Ink Eraser** (Sherley, Mass.).

A very efficient ink eraser may be prepared by powdering together equal quantities of citric and oxalic acids. When any ink-marks or writing are to be erased on paper, a little of the powder is carefully sprinkled over the writing, and then touched with the moistened end of a small piece of wood (a match, or the blunt end of a pen holder will answer). As soon as the ink-marks have disappeared, the moist spot is dried with blotting paper. If the ink-spots are on linen, etc., a pinch of the powder is placed upon it, and then enough water applied to almost dissolve it. In this case, less care is required, and the treatment may be repeated once or twice, if necessary. Of course, the method will only remove iron ink, not nigrosin ink. The latter can only be removed mechanically.

No. 2,142.—**Fragrant and Antiseptic Mouth-Wash** (O. S. W.).

We have published various formulas for preparing mouth-washes, the most pleasant and refreshing one being that which will be found on page 199 of our last volume. Since this was published, we have received a suggestion from a competent authority to omit the sugar, as this is liable to interfere with the antiseptic character of the liquid. We think this suggestion a good one, and now propose the following amended formula, which has been practically tested. The essential oils used in its preparation should be of the very best and freshest quality:

Safrol	360 min.
Oil of Pinus Pumilio	120 "
" " Curaçao	120 "
" " Vetivert	6 drops.
" " Wintergreen	24 "
" " Anise, Saxony	6 "
" " Rose Geranium, Afr	6 "
Naphthol	60 grains.
Deodorized Alcohol	24 fld. oz.
Solution of Saccharin	½ " "
Glycerin	8 " "
Purified Talcum	2 tr. "
Water enough to make	6 pints.

Dissolve the essential Oils and the Naphthol in the Absolute Alcohol, add the Glycerin, the purified Talcum, and afterwards 3½ pints of Water, previously heated to a temperature of 122° F. Stopper the vessel securely, and shake the contents frequently until they are quite cold. Then filter through a netted filter, returning the first portions of the filtrate until it runs through clear, and pass enough Water through the filter to make the product measure 16 fluidounces.

The "solution of saccharin" directed in the above formula is one containing 4 grains of saccharin in the fluidrachm, which is the strength recommended by the National Formulary Committee. It is prepared as follows:

Dissolve 512 grains of Saccharin and 240 grains of Bicarbonate of Sodium in 10 fluidounces of Water (taking care that the reaction is made to take place in a sufficiently large vessel to prevent loss from the resulting effervescence), then filter the solution, add to it 4 fluidounces of Alcohol, and pass enough Water through the filter to make 16 fluidounces.

The cost of this preparation, calculated upon the basis of fair maket prices for the several ingredients, is about 18 cents per pint.

No. 2,143.—**Phenacetin** (Subscriber).

This name has been recently applied to the substance known as para-acetphenetidin which was introduced about a year ago as an antipyretic by O. Hinsberg and Prof. Kast. We have had no experience with this agent so far, at least we have not witnessed its effects, though we have had it under our hands. Its constitution is represented by $C_6H_4 \cdot OC_2H_5 \cdot NH(CO\text{-}CH_3)$; that is, it may be regarded as the acetal-compound of the ethylic ether of para-amido-phenol. Or, it may be regarded as being derived from aniline $C_6H_5 \cdot NH_2$, where one atom of hydrogen of the NH_2 group is replaced by acetyl ($CO\text{-}CH_3$), and 1 atom of hydrogen of the group C_6H_5, by the ether-radical OC_2H_5. The relationship of phenol, aniline, acetaniline (or antifebrin) and phenacetin will be understood by examining the following formulas:

C_6H_6	$C_6H_5.OH$	$C_6H_4 \begin{cases} H \\ NH_2 \end{cases}$	$C_6H_4 \begin{cases} H \\ N(CO\text{-}CH_3) \end{cases}$
benzol	phenol	aniline	acetanilide

$C_6H_4 \begin{cases} OH \\ NH_2 \end{cases}$	$C_6H_4 \begin{cases} OC_2H_5 \\ NH_2 \end{cases}$	$C_6H_4 \begin{cases} OC_2H_5 \\ NH(CO\text{-}CH_3) \end{cases}$
para-amido-phenol	ethylic ether of para-amido-phenol or phenetidin	acetyl-phenetidin (*para*) or acetphenetidin, or phenacetin

Phenacetin is a microcrystalline powder of a faint reddish tint, odorless and tasteless, very difficultly soluble in water, more so in glycerin, and very easily in boiling alcohol. It is insoluble in acid or alkaline liquids, but is slowly absorbed when introduced into the stomach. It has been found to be a very efficient antipyretic, without any disagreeable effects, to judge from the reports so far received. It is best administered at first in a medium doze, viz., 8 grains, in order to be sure that it may not, after all, produce undesirable symptoms. And when it is to be repeated, it may then be given in full dose, viz., 10 to 12 grains.

The following reactions are given by E. Utecher (in the *Apotheker Zeit.*) for identifying this substance. On adding 1 drop of solution of ferric chloride to 20 C.c. of water containing 0.05 Gm. (ab. ¾ grains) of phenacetin, no change is produced until a gentle heat is applied, which causes a reddish tint, the same as would be produced by an equivalent quantity of acetate of sodium or of acetanilide. But if 0.05 Gm. (say ¾ gr.) of phenacetin are boiled with 1 C.c. of normal hydrochloric acid, then about 20 C.c. of water and 1 C.c. of normal potassa solution added, the further addition of 1 drop of ferric chloride solution will produce, on gentle warming, a magnificent violet tint. Sulphuric acid containing nitrous acid produces in a liquid containing phenacetin a deep brown color, while acetanilide under similar conditions scarcely shows any color at all. When treated with a few drops of fuming nitric acid, acetanilide yields a brownish-red solution, soon turning to a handsome blue, which gradually disappears; phenacetin yields a liquid having a persistent yellow color, which turns orange upon the addition of potassa.

No. 2,144.—**Lipanin** (Philadelphia).

This is the name applied to a new product prepared by C. A. F. Kahlbaum, of Berlin, intended to fulfil the functions of cod-liver oil in such cases where the latter is not well borne. Lipanin is, of course, a proprietary article, it having apparently become a point of honor, or rather an object of rivalry, for the different large manufacturing firms to search around for new resources of unlimited profit, by acquiring the exclusive ownership of a product largely used in medicine (for instance, antipyrin, thallin, lanolin, mollin, ichthyol, etc.) or in the arts.

Lipanin is stated to be a very fine quality of olive oil containing 6 per cent of oleic acid.

No. 2,145.—**Gums used for Varnishes** (K.).

This correspondent asks what "gums" are used in the manufacture of varnishes for wood work.

The so-called "gums" are of course, not *gums* in a chemical sense, but chiefly *resin*. In commercial parlance, however, they are usually classed as "gums." The number of those used for making wood varnishes is very large, and it would take too much space even to enumerate them here. We would recommend to our correspondent to procure a copy of "Die Harze und ihre Producte." Von Dr. G. Thenius. Wien (Hartleben). This will give the information desired. He may also consult the chapter on "varnish" in any of the technical encyclopædias.

No. 2,146.—**Hoffman's Balsam of Life** (Q.).

Hoffman's Balsam of Life, or Balsamum Vitæ Hoffmanni, is the *Mistura Oleo-balsamica* of the German Pharmacopœia. It is merely a solution of certain essential oils and of balsam of Peru in alcohol. Calculating the original formula, which is in parts by weight, into the aproximate equivalents by measure, the following quantities will yield a product practically equivalent with that of the Germ. Pharm. Oil of Lavender, Oil of Mace, Oil of Thyme, Oil of Lemon, Oil of Orange-flowers, of each ʒ ss.; Oil of Cloves, and Oil of Cinnamon, of each ♏ xxv.; Balsam of Peru, ♏ lxxx.; Alcohol, enough to make 16 fl. oz.

No. 2,147.—**Pomade Vaseline and Vaseline Cold Cream** (W. B. S.).

It is a very simple matter to prepare this. All that is necessary is to select some combination of aromatics suitable for hair preparations, and to incorporate them with vaseline. For common purposes the best grades of commercial petrolatum will answer. But when a nice preparation is wanted, vaseline should be used. The very best substance, however, is the beautiful, whitish-translucent base, known as *albolene* (for which McKesson & Robbins, of New York, are the agents).

Among the host of combinations which might be given for perfuming this or similar preparations, the following (suggested by Dieterich) may be quoted:

	By weight.
1. Oil of Bergamot	90 parts.
" " Lemon	60 "
" " Lavender	40 "
" " Cassia	4 "
" " Cloves	4 "
" " Wintergreen	2 "
Cumarin	1 part.

Mix them. When the cumarin is dissolved, set the mixture aside for several days in a cold place, and filter.

2. Oil of Bergamot	80 parts.
" " Lemon	60 "
" " Lavender	40 "
" " Neroli	10 "
" " Cinnamon (Ceylon)	6 "
" " Cloves	4 "
" " Wintergreen	2 "
" " Ylang	1 part.
Cumarin	1 "
3. Oil of Bergamot	60 parts.
" " Lemon	30 "
" " Lavender	20 "
" " Neroli	14 "
" " Rose	10 "
" " Cinnamon (Ceylon)	4 "
" " Wintergreen	2 "
" " Ylang	1 part.
Cumarin	2 parts.
Tonquin Musk	q. s.
Oil of Orris	q. s.

Mix the oils. To every 1,000 grains of the mixture add 21 drops of oil of orris, and 1½ grains of musk. Macerate eight days, then filter.

Vaseline Cold Cream may be prepared as follows:

White Wax	75 parts.
Spermaceti	75 "
Oil of Almonds, expressed	450 "
Vaseline	200 "
Distilled Water	200 "
Borax	10 "
Flavoring	q. s.

The flavoring recommended by Dieterich is composed as follows: Oil of Rose, 20 drops; Oil of Bergamot, 20 drops; Oil of Rose Geranium (French), 5 drops; Oil of Rhodium, 2 drops; Oil of Orris, 2 drops; Tincture of Civet (1 : 10), 5 drops; Cumarin, ¼ grain. 24 drops of this mixture are to be added for every 16 avoirdupois ounces of cold cream to be obtained. The manipulation is the same as that for the officinal Unguentum Aquæ Rosæ.

By substituting *albolene* here likewise, the product will be perfectly white.

No. 2,148.—**Sherbet Powders** (K. G. K.).

These are simply flavored lemonade powders, and may be produced in various ways, with a variety of flavors. Cooley gives the following formula, on what authority we do not know:

Orange peel powdered, 12 grains; bicarbonate of sodium, 3½ av. oz.; oil of cedrat [oil of Citrus medica], 12 drops; oil of orange peel, 60 drops; tartaric acid, 4 oz. Dry each powder carefully by itself, then mix the whole quickly and put in a bottle, which must be securely stoppered.

We should imagine that, by grating the peel of fresh oranges and lemons against loaf-sugar, and then reducing this to powder, a finer aroma could be imparted.

No. 2,149.—**Mountain Balm.**

One of our correspondents writes to us from Philadelphia that he has recently on several occasions ordered "mountain balm," meaning the Eriodictyon Californicum or Yerba Santa, from wholesale houses, and that he has in each case received the *Red Mountain Balm*, viz., Monarda didyma. He desires to know whether this has occurred to any of our other readers.

We can state that we have ascertained, upon inquiry made among dealers in crude drugs, that it is customary to designate the Monarda didyma as "Mountain Balm" in the trade and price-lists. There is a certain custom prevailing in the nomenclature of crude drugs which has undergone but little alteration. If the Eriodictyon Californicum is required, we advise our correspondent to order it either by that name, or, perhaps better, by the name "Yerba Santa." He will then obtain what he wants.

No. 2,150.—**Chandler's Chlorodyne** (D. E. S.).

As is well known, there is not one among the many formulæ heretofore proposed to make a preparation equivalent to chlorodyne which does not produce a materially different result. That known as Chandler's forms no exception to this rule, but is perhaps more frequently used than others at the present time. The formula is as follows:

Hydrochlorate of Morphine	gr. 16
Alcohol	fl. dr. 10
Glycerin	fl. dr. 13
Fluid Extr. of Cannabis Indica	fl. dr. 4
Chloroform	fl. dr. 4
Tincture of Capsicum	min. 32
Oil of Peppermint	min. 16

The formula which has been worked out by the National Formulary Committee, and which will soon be at the disposal of the profession by the appearance of the work, is believed to be the most rational and satisfactory so far produced. As it is expected that the Formulary will be out before the appearance of our *next* issue, we refer our readers to the work itself.

No. 2,151.—**Hall's Solution of Strychnine** (S.).

The following formula is that most generally used. The quantity of Acetic Acid is often given differently, mostly larger; but Dr. Hall himself used only a dilute acid, and besides, changed the proportions repeatedly.

Acetate of Strychnine	4 grains
Diluted Acetic Acid	60 minims
Alcohol	1 fl. oz.
Compound Tincture of Cardamom	15 minims
Water, enough to make	4 fl. oz.

The mixture should be allowed to stand, exposed to the light, during a few days, so that all the coloring matter which cannot be retained in solution may precipitate. It may then be filtered, and will remain clear for a long time.

The dose of this preparation is from 5 to 20 minims, or more, if necessary, to be used with caution.

No. 2,152.—**"Four-per-cent Solution"** (Junior).

We are asked the question: "What is a 4-per-cent solution? Is it 4 grains of cocaine (or any other soluble substance) to 100 grains of water? Or about 40 grains to 2 fluidounces of water?"

This question has been raised repeatedly of late, and we are glad to have an opportunity of stating our views regarding it.

When speaking of *percentage*, it is necessarily implied that the proportion, existing *in* 100 parts or corresponding *to* 100 parts, should be given in the same designation of *either* weight *or* measure.

If both the fractional part and the whole product are *liquid*, there may be a doubt engendered, as to whether *weight* or *measure* is intended. For instance, when we speak of "80 per cent alcohol." This, of course, means an alcoholic liquid, containing 80 per cent of absolute alcohol, and 20 per cent of water. But it still remains uncertain whether weight or measure is meant. To remove any doubt, it is necessary to specify either "by weight" or "by measure" in such cases.

When, however, one of the two subtances, either the fractional part or the whole product is a *solid*, it is necessary to discard the *measure* and to confine one's self exclusively to *weight*. Both the liquid and the solid *can* be weighed. But only *one* of them could be measured. Hence, to quote the example mentioned by our correspondent, a 4-per-cent solution of a solid in water must necessarily be one which contains 4 parts of the solid *in* 100 parts, or in other words, every 100 grains of which contain 4 grains of the solid. There is no possible way of getting a *measure* in here.

Our correspondent commits a very common error—possibly only a slip of the pen—by using the expression: "Is it 4 grains of cocaine (etc.) *to* 100 grains of water." A solution thus prepared would, of course, weigh 104 grains, and consequently it would *not* contain 4 per cent of cocaine. A true 4-per-cent solution is made by dissolving 4 grains of the solid in 96 grains of water, the product weighing 100 grains.

Whenever the solution of a solid substance is prescribed in terms of percentage, this *is always* to be understood as being by *weight*.

Two fluidounces of water weigh about 911 grains. If 40 grains of cocaine were dissolved *in* 2 fluidounces of water, the product would weigh 951.4 grains, and would really contain only 3.8 per cent of the solid in solution.

To mention other examples, belonging here, we read of 1% solutions of corrosive sublimate, 1% solutions of nitroglycerin, 5% solutions of carbolic acid, etc., etc. *All* of these are presumed to be made by *weight*. In practice, it is certainly more easy to make them by weight than by measure. Tare a bottle, place into the proper weight of the solid and then add enough of the liquid to make up the final weight.

No. 2,153.—**Saccharin** (C. A. W.).

This substance, the chemical name of which is anhydro-ortho-sulphamine-benzoic acid, and which is now manufactured on a large scale under the patents of Fahlberg and List, may be procured from any wholesale dealers of drugs in the country.

No. 2,154.—**Analytical Balance** (Mass.).

It is very difficult to advise any one regarding the purchase of an analytical balance, if the advice is hampered by conditions, or when it is not known what kind of work is expected to be done with the balance. It is certainly much more preferable to write to makers or dealers in balances, and to ask them to send a catalogue or price list. This will give more practical information than any advice we could give here. Our correspondent may consult the index of advertisements under "Scales."

No. 2,155.—**Tasteless Syrup of Iodide of Iron** (Brockton, Mass.).

What is called tasteless syrup of iodide of iron contains the iron in a condition differing from that of the officinal syrup. The latter contains 10 per cent, by weight, of the green ferrous iodide (proto-iodide), while the so-called tasteless preparation contains the red ferric iodide (sesquiiodide). It is also customary to make the latter weaker than the former, the most usual formula making the tasteless syrup contain about 3.6 grains of ferric iodide in each fluidrachm, while the officinal syrup contains about 8 grains of ferrous iodide. If the proportion of *metallic* iron in the two preparations is compared, the syrup of ferrous iodide (U. S. P.) represents about 1.44 grains in each fluidrachm, and the syrup of ferric iodide ("tasteless") about 0.46 grains. It would be pharmaceutically possible to raise the strength of the latter so as to equal the former in *iron*, but this would render the preparation too irritating; at least, it would require the administration of a smaller dose at a time. And, besides, it could then scarcely be designated any longer as tasteless. The best formula for preparing the tasteless syrup is the following:

Iodine	400 grains.
Iron Wire, fine and cut	200 "
Citrate of Potassium	620 "
Sugar	10 troy oz.
Distilled Water	enough to make 16 fl. oz.

Mix the Iron with 4 fluidounces of Distilled Water in a flask, add 267 grains of the Iodine, and apply a gentle heat until the Iodine is combined and the solution has acquired a greenish color. Then heat the contents of the flask to boiling, filter the liquid, and wash the filter with ½ fl. oz. of hot Distilled Water. To the hot filtrate add the Citrate of Potassium, and afterwards the Iodine, and agitate until the liquid has assumed a greenish color. Pour this upon the Sugar contained in a bottle, agitate until solution has been effected, and, when the liquid is cold, add enough Distilled Water to make 16 fluidounces.

No. 2,156.—**Chicle** (R.).

Chicle, also known by the name *balata*, *zapoto*, is the dry milky juice of *Sapota Muelleri*, a member of the Sapotaceous family so largely represented in the tropics. In Mexico, where this particular tree is at home, it is called *zapoto chica* or *zapotillo*, and the native Indian name is

xiconzopotl. The "gum" is sometimes called "bully tree gum," "tuno," or "leche de popa." The designation "gum" is scientifically incorrect, as it really belongs under the class of resins, variety caoutchoucs. It is not a spontaneous oxidation, but is obtained by running a belt around the tree in a cork-screw fashion, beginning at the ground, and making only about 1 or 1½ turns all around. The sap or milk is received in vessels placed below. This is boiled to drive out the water, and it is then cast in blocks varying in weight from 1 to 25 pounds, in which shape it comes into the market.

Chicle, or "gum chicle," has been found specially serviceable as an ingredient in the rubber composition for porous and other rubber plasters, as an ingredient of certain kinds of chewing gum, and as an excellent insulating medium for electric wires. It also resists the action of ozone better than any other known substance, and for this reason, tubing made of chicle, or mainly of this substance, are very serviceable when ozonized air is to be conducted through it.

No. 2,157.—**Chromatizing Catgut** (J. E. L. Co.).

Regarding chromatizing catgut, we would say that the best surgeons in this country and in Europe have long given up this practice, as it is dangerous, owing to the weakening effect of the chromic acid upon the catgut, thereby rendering it liable to break at critical moments, and to cause death of the patient by secondary hemorrhage from a tied artery.

At Bellevue Hospital and in all the other large hospitals in New York City, the use of chromatized catgut has long been abandoned. The only kind now used is that which is prepared by soaking the *very best* raw catgut (violin or banjo strings of suitable size) in oil of juniper for twenty-four hours, and afterwards preserving it in alcohol.

There is no excuse for practising economy in the quality of the catgut. Only the *very best* should be used, as the life of a patient will often depend upon the soundness of an artery-ligature.

If chromatized catgut *must* be prepared, then Lister's original method is probably the best.

Dissolve 1 part of chromic acid in 4,000 parts of water, and add 200 parts of pure carbolic acid. Into this solution at once introduce 200 parts by weight of the catgut to be prepared, and macerate it for forty-eight hours. Then take it out, dry it quickly, and keep it in a solution of 1 part of carbolic acid in 5 parts of some bland oil (olive or cotton-seed oil).

No. 2,158.—**Removing Mildew Spots** (R. & Co.).

To remove mildew spots from fabrics, the most reliable way that we know of is to treat the spots with a clear filtered solution of chloride of lime, or with a solution of Labarraque, which is to be applied for a short time, depending on the depth of the stain or the quality of the fabric. Very delicate fabrics, including silk, will not stand a strong solution; in such cases, it should be diluted with water. It is also advisable to use a preliminary treatment with commercial solution of peroxide of hydrogen, after which the spots may often be removed by washing with soda and water, or one of the above-mentioned bleaching liquids may be applied before finally washing. Some mildew spots are very obstinate. If the fabric was pure white, the bleaching process will usually succeed. The farther from pure white the tint of the fabric is, the less successful will be the operation.

Formulas asked for.

1. Harriet Hubbard Ayer's Face Powder.
2. Recamier Cream.
3. Shiloh's Consumption Cure and Vitalizer.
4. Cosmetic Lotion (Palmer's).

CORRESPONDENCE.

Pharmacopœial Titles.

DEAR SIR:—Since the revision of the U. S. Pharmacopœia of 1880, I have not observed one package of chemicals or alkaloids properly labelled according to the revised edition. I have especially noticed packages from manufacturing chemists. Can we not correct this fault?

Yours truly,

BEDFORD, MASS. J. E. MCKEON.

Prescription Charge.

Editor AMERICAN DRUGGIST.

DEAR SIR:—I send herewith the copy of a prescription which I have been asked to put up, provided I could do so for $1.40. I told the person who offered it that $2.50 was the least I would do it for. Here is the ℞:

Camphor	ʒ ij.
Oil of Origanum	ʒ iv.
Oil of Wormwood	ʒ ij.
Olive Oil	ʒ iv.
Water of Ammonia	ʒ ij.
Alcohol	Oij.

The actual cost of this I figure at about $2.00, and how any druggist can prepare it for $1.40 and make anything out of it I cannot comprehend. Possibly some of your readers can enlighten me.

I contend that no druggist could compound it and put in all the articles at that price, and that this goes to show the disadvantage an honest and conscientious druggist has as against an unscrupulous one who, no doubt, leaves out the whole or a part of the oil of wormwood, which is the most expensive ingredient, costing 50 cents per ounce for American, and $1.25 for French.

Yours respectfully, F. E. E. H.

CHESTER, PA., April 11th, 1888.

[Our correspondent may have been deceived in the statement that some other man had supplied it for $1.40. It is not unlikely that this was purely a product of the would-be purchaser's imagination, and that he meant $2.40. In a similar case, it would be well to find out the name of the man who is alleged to have made such a charge and ascertain if it was reported correctly. In the event of your having another case of the same kind, might it not be well to get out your prices-current and show the customer that you can't sell drugs for less money than you pay for them, and that any one who professes to do so must either be a fraud or a very charitable person?—ED. AM. DRUG.]

Effect of Cocaine on Leeches.

DEAR SIR:—It may interest some of your readers to learn of an incident lately experienced by the writer.

A physician, while treating a patient, prescribed a five-per-cent sol. cocaine, to be applied with a camel-hair brush; also two leeches.

The doctor applied the sol. cocaine to his patient on the part affected and wiped the part dry, then forced the leeches alternately to their required duty, which they failed to perform, and were returned to me lifeless. Well, two more were supplied, very nice ones, and returned in the same condition as those formerly.

Then came the much-annoyed and vexed physician, saying: "When I send for leeches, I don't want embryos. My time is too valuable to be fooled away these busy times," etc.

At first, not knowing that the leeches were applied to the parts directly absorbing the sol. cocaine, I said nothing.

Finally, questioning the circumstances, the doctor could see the point without glasses. M. E. J.

Cincinnati College of Pharmacy.

Editor of the AMERICAN DRUGGIST.

DEAR SIR:—The annual meeting of the Alumni Association of the Cincinnati College of Pharmacy was held February 16th, at which the following officers were elected: President, Edw. Muehlburg; First Vice-President, A. W. Bain; Second Vice-President, Chas. J. Kaefer; Recording Secretary, E. H. W. Stahlhuth; Corresponding Secretary, A. Wetterstroem; Treasurer, Emil Henn; Executive Board, L. W. Sauer, C. J. Kaefer, H. Serodino, and C. A. Fieber; Entertainment Committee, C. J. Kaefer, Edw. Muehlburg, E. H. W. Stahlhuth, W. F. Schell, and C. J. Lammert; Committee on Queries, L. W. Sauer, C. J. Kaefer, and O. E. Plath.

A banquet was tendered the graduating class at the Highland House, which was participated in by the Alumni and invited guests.

At a special meeting March 14th, the Alumni met to discuss two bills which were introduced into the House and Senate respectively, relating to the practice of pharmacy in this State. The latter was a bill which had been reported favorably by the Senate committee; it was an amendment to section 4,407 repealing the original section and virtually re-enacting it, thereby opening a way for persons three years in the drug business to become registered without examination.

The Alumni immediately appointed a committee, consisting of Messrs. Bain, Muehlburg, and Kaefer, to go to Columbus and defeat the bill by all fair means.

At a subsequent meeting the committee reported that they had had an audience before the Hamilton County delegation, and pointed out the dangers to the pharmacy law in the bill, and so impressed the delegation with their opinions that it was defeated the day it came to a vote.

The House bill allowing physicians of five years' practice to become pharmacists is laid over for the time being. Respectfully yours,

ALBERT WETTERSTROEM,
Cor. Sec'y Alumni C. C. P.

CINCINNATI, OHIO, March 29th, 1888.

Denver School of Pharmacy.—The Denver (Colorado University has added a department of Pharmacy, which will open in September next.

Nobel, the famous inventor of dynamite, recently died at Cannes, on the Mediterranean.

BIBLIOGRAPHY.

PRACTICAL MICROSCOPY. A Course of Normal Histology for Students and Practitioners of Medicine by MAURICE N. MILLER, M.D., Director of the Department of Normal Histology in the Loomis' Laboratory, University of the City of New York. Illustrated with 126 Photographical Reproductions of the Author's Own Drawings. New York: William Wood & Co., 1887; pp. 217, 8vo.

ASIDE from the general excellence of this work, there is nothing in it which calls for especial comment in this connection, unless it be to express the regret that the author did not embrace the opportunity for giving a more complete list of the various reagents and fluids employed in microscope work, which now have to be sought for in numerous publications.

We observe some carelessness in the selection of language, which should be corrected in another edition.

ESSENTIALS OF CHEMISTRY AND TOXICOLOGY, for the use of Students in Medicine, by R. A. WITTHAUS, A.M., M.D., etc., etc. New York: William Wood & Co., 1888, pp. 294. (2d ed.) $1.00.

AN INDEX OF MATERIA MEDICA WITH PRESCRIPTION WRITING. Including Practical Exercises. By CHARLES H. MAY, M.D., and CHARLES F. MASON, M.D. New York: William Wood & Co., 1887, pp. 267, $1.00.

THESE two works belong to the series of Wood's Pocket Manuals and embrace facts which are of leading importance and which, in larger works, are difficult of access on account of the amount of relevant matter with which they are accompanied. They are quite as well suited to the wants of pharmaceutical as of medical students, and their convenient size enables them to be kept at hand during laboratory work and lectures, when the information they give is most opportune and most easily remembered.

600 MEDICAL DON'TS or the Physician's Utility Enchanced. By FRED. C. VALENTINE, M.D., etc. New York: G. W. Dillingham. London: S. Low, Son & Co., 1887, pp. 144.

OF all the books that we have seen composed of medical axioms, this is by far the best. Too many of this class of hand-books have been the work of persons dominated by an -ism or a -pathy, and are correspondingly unreliable as authorities; this one, however, shows no evidence of such a bias, but is full, from cover to cover, of practical suggestions and uncommon good sense. The usefulness of many physicians would, without doubt, be greatly enchanced, by observing the truths which this little manual contains in the advice given to their patrons, and non-professional readers would likewise increase their chances of a long and comfortable life by following its precepts.

TOILET MEDICINE. A Popular Scientific Manual on the Correction of Bodily Defects and the Improvement and Preservation of Personal Appearance; together with Formulæ for all the Special Preparations Recommended. Second Edition. By EDWARD WOOTON, B.Sc., etc. New-York: J. H. Vail & Co., 1888, pp. 114, 8vo.

IN many respects, this is a useful book, but it contains too little matter relating to the subject implied by its title, and too much of wholly irrelevant matter, or of matters which are not suitable for use by non-professional persons. Moreover, much of the information and advice given is not consistent with the views of medical men at the present time, and, in a few instances, might result, if followed, in injury.

Bulletin of Medical Societies.—The following bulletin of medical meetings of National and State Associations, compiled by the *Medical Standard*, will be serviceable to intending exhibitors of pharmaceutical products.

ASSOCIATION.	PRESIDENT.	SECRETARY.	PLACE AND TIME OF MEETING.	LOCAL SECRETARY.
Am. Climatological	A. L. Loomis, New York	J. B. Walker, Philadelphia		
Am. Dermatological	I. E. Atkinson, Baltimore	G. H. Tilden, Boston		
Am. Genito-Urinary	E. L. Keyes, New York	R. W. Taylor, New York		
Am. Gynæcological	R. Battey, Rome, Ga	J. T. Johnson, Washington, D.C.	Boston, September 21	
Am. Insane Hospital	E. Grissom, Raleigh, N. C	J. Curwen, Warren, Pa	Old Point Comfort, Va	
Am. Laryngological	R. P. Lincoln, New York	D. B. Delevan, New York		
Am. Medical Associa'n	A. Y. P. Garnett, Washington	W. B. Atkinson, Philadelphia	Cincinnati, May 8	
Am. Neurological	J. J. Putnam, Boston	Græme Hammond, New York		
Am. Ophthalmological	W. F. Norris, Philadelphia	W. F. Wadsworth, Boston	New London, July 19	
Am. Orthopædic	N. M. Shaffer, New York	L. H. Sayre, New York		
Am. Otological	J. S. Prout, Brooklyn, N. Y	B. J. J. Vermyne, New Bedford, Mass	New London, July 19	
Am. Public Health	G. M. Sternberg, Baltimore	I. N. Watson, Concord, N. H		
Am. Rhinological				
Am. Surgical	D. H. Agnew, Philadelphia	J. R. Weist, Richmond		
Cong. Physicians and Surgeons	J. S. Billings, Washington	W. H. Carmalt, New York	Washington, September 18	
STATE SOCIETIES.				
Alabama	E. H. Sholl, Birmingham	T. A. Means, Montgomery	Montgomery, April 11	B. S. Baldwin
Arkansas	W. P. Hart, Washington	L. P. Gibson, Little Rock	Fort Smith, April 25	L. L. Saunders
California	R. H. Plummer, San Francisco	W. A. Briggs, Sacramento	San Francisco, April 15	C. G. Kenyon
Colorado	S. E. Solly, Colorado Springs	S. A. Fish, Denver	Colorado Springs, June 19	B. F. Adams
Connecticut	F. Bacon, New Haven	S. B. St. John, Hartford	New Haven, May 23	W. Y. Carmalt
Dakota				
Delaware	J. H. Hopkins, Milton	C. R. Layton, Georgetown	Georgetown, June 8	C. R. Layton
Florida				
Georgia	A. G. Whitehead, Waynesboro	A. B. Ashworth, Atlanta	Rome, April 18	
Illinois	W. O. Ensign, Rutland	D, W. Graham, Chicago	Rock Island, May 15	C. Truesdale
Indiana	S. H. Charlton, Seymour	E. S. Elder, Indianapolis	Indianapolis, June 5	L. M. Rowe
Iowa	J. C. Hinsey, Ottumwa	S. S. Lytte, Iowa City	Des Moines, May 16	J. M. Emmert
Kansas	L. A. Buck, Peabody	J. E. Minney, Topeka	Topeka, May 1	W. S. Lindsay
Kentucky	J. G. Brooks, Paducah	J. S. Bailey, Stanford	Crab Orchard Springs, July 4	J. G. Brooks
Louisiana	J. Jones, New Orleans	P. B. McCutcheon, N. O	Monroe, April 21	
Maryland		T. Barton Brune, Baltimore		
Massachusetts	T. H. Gage, Worcester	F. W. Goss, Boston	Boston, June 12	J. B. Swift
Michigan	T. A. McGraw, Detroit	G. Duffield, Detroit	Detroit, June 14	H. O. Walker
Minnesota	C. F. McComb, Duluth	C. B. Witherle, St. Paul	St. Paul, June 21	A. E. Senker
Mississippi	N. L. Guice, Natchez	W. E. Todd, Clinton	Jackson, April 18	J. F. Hunter
Missouri	F. J. Lutz, St. Louis	J. H. Duncan, Kansas City	Kansas City	
Nebraska	G. H. Peebles, David City	A. S. V. Mansfelde, Ashland	Lincoln	
Nevada				
New Hampshire	S. W. Roberts, Wakefield	G. P. Conn, Concord	Concord, June 19	J. A. Watson
New Jersey	J. W. Ward, Trenton	W. Pierson, Orange	Lake Hopatcong, June 19	J. G. Ryerson
New York	S. B. Ward, Albany	W. M. Smith, Syracuse	Albany, February 5, 1889	F. C. Curtis
N. Y. Association				
North Carolina	T. S. Haigh, Fayetteville	J. M. Baker, Tarboro	Fayetteville, May 8	
Ohio	S. F. Forbes, Toledo	G. A. Collamore, Toledo	Columbus, June 13	
Oregon	K. A. J. McKenzie, Portland	C. C. Strong, Portland	Portland, June 12	
Pennsylvania	R. J. Levis, Philadelphia	W. B. Atkinson, Philadelphia	Philadelphia	J. H. Packard
Rhode Island				
South Carolina	T. Simons	J. L. Dawson	Columbia, April 14	
Tennessee	P. D. Sims, Chattanooga	A. Morrison, Nashville	Knoxville	R. Cheatham
Texas	S. R. Burroughs	F. E. Daniels, Austin	Austin, April 18	
Utah				
Vermont	E. R. Campbell, Bellows Falls	D. C. Hawley, Burlington	St. Albans, June 28	D. C. Hawley
Virginia	B. Blackford, Lynchburg	L. B. Edwards, Richmond	Norfolk, November	
Washington Territory	E. L. Smith, Seattle	C. H. Merrick, Seattle		
West Virginia	L. S. Brock, Morgantown	J. L. Fullerton, Charleston	Huntington, May 16	J. D. Myers
Wisconsin	L. G. Armstrong, Boscobel	J. T. Reeve, Appleton	Milwaukee, May 1	